

Compensation and Voluntary Participation in a Continuum of Service

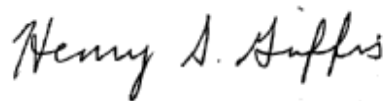
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A handwritten signature in black ink that reads "Henry S. Griffis". The signature is written in a cursive style with a large initial 'H' and 'G'.

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Executive summary

Background

Since the end of the cold war, and especially following September 11, 2001, each of the Services has used reservists more frequently, for longer periods of time, and in more varied roles. There are few indications that the existing level of reserve involvement will decrease in the near future. Despite this increased reliance on the Reserve and National Guard, many reservists chose to serve at a time when the traditional 38 days per year of service was considered the rule, not the exception. In addition, uncertainties surrounding the timing and length of mobilization and the possibility of involuntary mobilizations have the potential to adversely affect the pool of people considering reserve service.

Consequently, the Department of Defense is considering ways to increase opportunities for voluntary participation in the Reserves and for choice in the extent to which people serve. One such proposal is the Continuum of Service (CoS); at the heart of this continuum is the recognition that people differ in their willingness and ability to accept activations and deployments. As part of this effort, the Office of the Assistant Secretary of Defense for Reserve Affairs (Manpower and Personnel) asked CNA to examine potential changes to the compensation system that would support voluntary participation in a CoS.

Methodology

The CoS is, in many ways, a significant departure from the current method of managing reservists. Consequently, it was necessary to collect additional data on the responsiveness of reservists to changes in compensation. We made use of information from a variety of sources. First, we summarized general principles of economic theory about structuring a flexible compensation system. Then, we conducted

focus groups with reservists; these conversations centered on the CoS and potential changes to compensation that would improve voluntary participation in the Reserve. Both economic theory and focus groups helped the development of CNA's *Reserve Affairs – Continuum-of-Service Survey*, which we used to estimate reservists' relative preferences for proposed changes to the compensation system.

Findings

Our analysis of the data reveals four general principles. First, the data suggest that reservists have different preferences for participation, *even without changes in compensation*. While a number of reservists prefer the traditional level of commitment, several would be willing to participate more frequently. This result is true for reservists' preferences for the amount of participation during a year, for long and frequent activations, and for overseas mobilizations and deployments.

Second, our survey data consistently demonstrate that reservists will respond to targeted incentives. On one hand, respondents were more likely to prefer specific levels of reserve participation if incentives were targeted to people who accept these participation levels. This finding holds for both financial incentives and targeted changes to reserve retirement. On the other hand, across-the-board changes do not encourage participation in a CoS and are not cost-effective.

Third, our survey data do *not* provide evidence that an increase in compensation to support a CoS would significantly increase reserve retention. Our survey data reveal *stated preferences* of reservists, and there is no guarantee that these revealed preferences and reenlistment intentions will translate into actual behavior. Changes to compensation, however, appear to have a larger effect on reservists who have decided to participate than on those thinking about separating.

Finally, the data suggest that policy-makers can achieve a desired level of voluntary participation in *multiple ways*, through a variety of different changes to the compensation package. However, each change to the compensation system has a different cost associated with it. Targeted changes are more cost-effective than across-the-board changes and, in general, the more finely targeted the compensation tool, the more likely it is to be cost-effective.

Implications and recommendations

An important implication of our analysis is that policy-makers can increase voluntary participation in the Reserves by implementing a CoS, even without changes in compensation. This is consistent with its very premise, that people differ in their willingness and ability to accept activations and deployments. This does *not* imply, however, that changes to compensation are unnecessary. There is no guarantee that reservists' preferences will perfectly align with the Services' demand for their skills.

Our data do suggest that reservists are willing to adjust their preferences in response to targeted changes in compensation. Our analysis implies that policy-makers can use compensation tools to *effectively* implement a CoS. Since changes to compensation appear to have a large effect only on those reservists who have decided to participate, policy-makers need to *carefully* target compensation. Without a strategic targeting of incentives, using compensation to increase one level of participation will decrease the number of reservists who would have participated at a different level; this may or may not align with the Services' needs.

Finally, we recommend the use of targeted compensation to support the Continuum of Service. Based on our cost-benefit analysis, we recommend the use of targeted mobilization bonuses as a way for the Services to incentivize higher levels of participation. In general, we recommend that policy-makers use flexible compensation tools that are directly targeted to the change in participation in which there is interest. If policy-makers intend to enhance the reserve retirement package, matching TSP contributions and the provision of additional retirement points are two targeted changes to which survey participants responded favorably. We recommend that both of these be further examined as options to increase participation.



Introduction

Since the end of the cold war, each of the Services has used reservists¹ more frequently, for longer periods of time, and in more varied roles. Following September 11, 2001, reserve units have provided significant support to Operation Enduring Freedom, Operation Iraqi Freedom, and the federal response to the effects of Hurricane Katrina. There are few indications that the existing level of reserve involvement will decrease in the near future.

Despite this increased reliance on the Reserve and National Guard, many reservists chose to serve at a time when the traditional 38 days per year of service was considered the rule, not the exception. In addition, uncertainties surrounding the timing and length of mobilization and the possibility of involuntary mobilizations have the potential to adversely affect the pool of people considering reserve service.

Consequently, the Department of Defense (DoD) is considering ways to increase opportunities both for voluntary participation in the Reserves and for choice in the extent to which people serve. One such proposal is the Continuum of Service (CoS), which seeks to blur the lines between active and reserve duty so that it is relatively easy to move from one status to the other. Furthermore, the CoS would allow different degrees of part-time affiliation, with variation around the traditional 38-day requirement—variation that is more consistent with how reservists are currently being used. At the center of the CoS is the recognition that people differ in their willingness and ability to accept activation and deployment.

The CoS is, in many ways, a significant departure from the current way in which reservists are managed. Policy-makers are uncertain about whether the existing compensation system provides sufficient

1. Unless otherwise noted, we use *reservist* in this research memorandum to refer to a member of one of the Reserve or Guard Components.

incentive for people to voluntarily choose participation levels that align with the needs of the Services. Furthermore, it is not clear whether the composition of this compensation package is the most cost-effective way to provide these incentives. Consequently, the Office of the Assistant Secretary of Defense for Reserve Affairs (Manpower and Personnel) asked CNA to examine potential changes to the compensation system that would support voluntary participation in a CoS. This research memorandum summarizes the results of our analysis.

We begin with a discussion of this new paradigm and summarize general principles of economic theory about structuring a flexible compensation system. Following this discussion, we summarize conversations with reservists about the CoS and about potential changes to compensation that would improve voluntary participation in the Reserve.

These discussions helped the development of CNA's *Reserve Affairs—Continuum-of-Service Survey*, which we use to estimate reservists' relative preferences for proposed changes to the compensation system. After discussing the design of this survey and its methodological approach, we summarize our sampling strategy and the survey fielding process.

The next two sections contain the bulk of our empirical results. First, we focus on responses to two general sets of questions in the survey: respondents' mobilization histories and reenlistment intentions. Second, we summarize data from the Choice-Based Conjoint portion of the survey, questions that are designed to reveal the extent to which reservists are willing to accept different levels of participation as the compensation system is changed. The section after that contains cost-benefit analyses of different changes to compensation; finally, we present our general conclusions.

The Continuum of Service

Background

Men and women who wish to serve in the military must choose between active (full-time) and reserve (part-time) duty. Those who enlist into the Active Components (AC) are obligated to serve for 8 years; if a person separates from the AC before the end of this initial enlistment obligation, he or she must serve the remainder in the Reserve Components (RC). Many who separate from the AC after the expiration of their service obligation voluntarily choose to affiliate with the RC after leaving active duty. In addition to prior-service personnel, there are people without prior military service who choose to serve in the RC. Alternatively, prior-service and non-prior-service personnel may elect to go into the National Guard, which may be activated for federal missions.

Characterizing people as either “active” or “reserve” has been done for a number of years, but it is not consistent with the way the Services are currently using personnel [1]. More and more reservists are consistently and significantly exceeding the traditional 38-day service requirement [2]. Large numbers of reservists have been shifted by the Services to active-duty status, and a large percentage has been mobilized in support of the Global War on Terror (GWOT). Furthermore, it appears that DoD will continue to rely heavily on reservist participation at these historically high levels [3].

Recruiting and retention

Several researchers have noted the flavor of “conscription” implied by the use of mobilization as a force management tool [2]. The theoretical consequences of involuntary mobilization on the behavior of an All-Volunteer Force are well understood. Specifically, managing the force in this way is likely to adversely affect recruiting and retention

in the RC. These problems are exacerbated if the level of reservist participation associated with involuntary mobilization substantively differs from people's expectations when considering reserve service.

Simple models of active-duty reenlistment behavior suggest that, holding all else constant, those who leave active duty do so for two reasons: relatively high civilian earnings opportunities and a relatively high preference for civilian life.² Therefore, personnel who leave active duty and voluntarily choose to affiliate with the RC have revealed that they prefer affiliation with a Reserve Component to active duty service. In other words, if they preferred active-duty service to reserve service, they would have remained on active duty. Higher-than-expected levels of reservist participation, then, are expected to lower retention of reservists with previous military experience; they have already demonstrated that they do not wish to serve full-time in the AC.

Similarly, people without prior military service who choose to affiliate with the RC rather than the AC have revealed that they prefer a mix of reserve service and civilian employment to full-time active-duty service. Theoretical models of reenlistment behavior predict the same effect of higher-than-expected levels of reservist participation on retention of these Servicemembers; if they had a preference for active-duty service, they presumably would have affiliated with the AC instead of the RC.

One could argue that the negative effect of involuntary activation and mobilization on recruiting will be larger than on retention. Those who have chosen to affiliate with the RC have implicitly accepted the risk of higher-than-expected participation levels. People considering reserve service, however, have not yet accepted that risk. If high levels of participation of existing reservists translate into revised estimates of expected participation for new reservists, economic theory predicts that fewer people will choose to join the RC.

2. For a recent summary of the active-duty enlisted retention literature, see [3]. Reference [4] provides a more general discussion of theoretical models of enlistment and retention behavior.

There is little empirical evidence to suggest that recent increases in the frequency/duration of involuntary mobilizations have adversely affected recruiting and retention in the RC [2, 5]. However, policy-makers have correctly decided that it would be prudent to have the flexibility to address these potential manning problems *before* they come to fruition. In broad terms, DoD can seek to mitigate these effects in two ways. On the “demand” side, the Services can reduce the extent to which they use reservists, ensuring that actual levels of reservist participation are better aligned with individual expectations. On the “supply” side, the Services can provide opportunities for reservists to voluntarily choose their level of affiliation.

A new model of reservist participation

Given these concerns about recruiting and retention, some policy-makers have proposed replacing the existing model of participation with a new one, the Continuum of Service (CoS).³ This continuum seeks to blur the lines between active and reserve duty to make it relatively easy to move from one status to the other. Furthermore, the continuum would allow different degrees of part-time affiliation, with variation around the traditional 38-day requirement—variation that is more consistent with how reservists are currently being used.

At the heart of the CoS is the recognition that people differ in their willingness and ability to accept activation and deployment. To the extent that more people are willing to volunteer for higher levels of participation, forcing service through involuntary mobilization could be reduced, if not eliminated. It recognizes that not all reservists are identical; rather, they have different preferences, employment opportunities, and career objectives. For example, students, the self-employed, part-time workers in the private sector, and those currently unemployed all have different constraints from a reservist working full-time for a civilian employer.

An important feature of the CoS is the *variation around* the traditional level of reservist participation. Given the historically high levels of

3. Reference [2] provides an excellent description of the CoS concept.

reservist participation, it is often assumed that the CoS is intended to encourage reservists to volunteer for *higher* levels of participation. This is certainly *a* goal; policy-makers seek to identify and capitalize on the subset of reservists who would be willing to volunteer their services on a continuous part-time basis or for extended deployments. At the other end of the spectrum, however, the CoS “aims to establish pools of uniquely skilled individuals who participate on a limited or standby basis, but are available as volunteers for short periods or in emergency situations to perform specific tasks” [2]. Both higher and lower levels of voluntary participation are desired, depending on the specific needs of the Services.

On the supply side, then, the CoS provides different options for reservists and people considering reserve service. It even allows the same person to volunteer for different levels of affiliation at different points in his or her career. One must recognize, however, that implementation of the CoS will *not*, in and of itself, align reservist participation with the needs of the Services. The CoS simply provides *opportunities* for reservists to select different levels of affiliation. To balance the supply of and demand for these people, then, DoD needs to provide incentives to voluntarily choose participation levels that align with the needs of the Services.

Compensation and the CoS

Is higher compensation necessary?

To ensure that people voluntarily choose the level of affiliation desired by the Services, DoD will likely need to make changes to reservist compensation. A priori, it is not clear how dramatic these changes will need to be. While the existing compensation system is not designed to support the CoS, it is probable that simply providing additional opportunities for volunteerism will create variation in the extent to which people are willing to participate.

At present, one must choose among three discrete levels of participation: full-time, part-time (with a significant degree of uncertainty as to one’s actual level of participation), or no affiliation. Those who choose to affiliate with the RC prefer part-time to full-time service,

but some may actually prefer a higher level of participation than the traditional 38-day requirement.⁴ Providing an opportunity to voluntarily participate more frequently could lead to an increase in participation without any changes to the compensation system.⁵ This is even more likely given that, for a day of service under the current compensation system, reservists earn the same level of basic pay as their active-duty counterparts.⁶

While it is possible that implementation of the CoS will generate different levels of voluntary participation, it does not guarantee that levels of affiliation will align with the needs of the Services. Consequently, the Services need a more flexible system that provides incentives for people to voluntarily select the level of affiliation that is needed.

Furthermore, it is likely that different people will require different levels of compensation in order to volunteer for a given level of participation. While the CoS seeks to capitalize on the variation in individual preferences, it is these differences that generate variation in the amount of compensation necessary for different people. Since each person has a unique preference for military service and unique civilian career and family constraints, different people will, in principle, require different levels of remuneration to accept a given level of participation. This variation reinforces the need for a more flexible compensation system.

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4. Similarly, those who choose to affiliate with the RC prefer some level of affiliation to none at all, but some may actually prefer a lower level of affiliation to the traditional, 38-day requirement.
 5. Although it operates in a very different context, the Navy's recent experience with Assignment Incentive Pay (AIP) for active-duty personnel provides evidence that this may occur. The AIP system is designed to allow people to reveal preferences for assignment to different geographic locations and to reveal the level of compensation they would require to accept assignment to these locations. Policy-makers discovered that, when implementing the AIP system, several people signaled that they would be willing to accept certain assignments without any increase in compensation [6].
 6. See appendix A of [7] for a description of the compensation package currently provided to reservists.

Economic theory and structuring a flexible compensation system

When structuring a flexible compensation system, economic theory provides two general principles [8]. First, compensation reform should not be pursued for the sake of reform; rather, changes to the compensation system should be in direct response to a specific problem of the Services. For example, consider a scenario where reservists in a particular specialty are paid less than their active-duty counterparts. If the Services are able to fully man these billets, raising reservist pay is not a cost-effective change to the compensation system.⁷ While this pay increase might alleviate perceived inequities, it does not solve a tangible manning problem facing the Services.

Second, targeted pay is more efficient than across-the-board compensation. This principle is related to the first: targeted pay allows the Services to address specific problem areas. In contrast, across-the-board compensation is paid to all Servicemembers. While an across-the-board increase can alleviate a manning problem in a specific area, it also raises compensation in areas where there is no problem. This increases the overall cost of addressing the problem; targeted pay could achieve the same result at substantially lower cost. In general, across-the-board compensation should be used only when a problem is widespread and affects many disparate skills, units, or groups of reservists.

Targeting pay to encourage selective volunteerism

In the specific context of the CoS, three different types of cash compensation have the potential to provide this targeted flexibility. The first is an “availability bonus,” under which reservists would be offered compensation (if necessary) in return for agreeing to a certain level of commitment to the RC. Depending on the Services’ needs, an availability bonus could be targeted to various levels of availability. For example, reservists could be offered a bonus if they commit to being available for more than 38 days per year. Availability bonuses could also be extended to those who agree to be among the first to go during a mobilization or who explicitly accept a higher-than-average risk of being mobilized and deployed.

7. See [9] for a similar argument about comparisons of military and civilian earnings.

At the other end of the spectrum, reservists could be offered a bonus to remain “on call” in the event that the Services require their skills. These would be the reservists with skills that the Services need intermittently and who do not require regular drilling to maintain proficiency. A bonus for these reservists could be required to encourage them to participate at this level since fewer days of service would imply lower compensation.

The Services already have existing authority to offer two additional types of bonuses: skill-based and unit-level affiliation bonuses. Skill-based incentives are paid to reservists for skills acquired on active duty or in the private sector, and they can be paid for acquiring or maintaining proficiency in a skill. Unit-level affiliation bonuses are targeted to high-priority units or units with a shortage of reservists in critical skills.

Skill-based and unit-level affiliation bonuses could be combined with the availability bonus to form a single pay that varies across these three dimensions. Depending on the demands of the Services and the difficulty in attracting enough volunteers, this bonus could vary to attract the right skill mix in the right location for the right amount of time. A combination of these special pays allows the Services to address critical shortages in the most cost-effective manner.

Compensation is more than “pay”

Alternatively, the Services could target critical shortages through selective use of compensation tools other than pay. Possibilities include (a) matching of Servicemembers’ contributions to their Thrift Savings Plans (TSPs), (b) acceleration of the accrual of retirement points, (c) increases to or transferability of education benefits, and (d) access to and subsidy of TRICARE.

Targeted compensation in these areas appeals to different types of reservists [10]. For example, improvements in retirement and health care are not likely to be attractive to people with strong civilian retirement and medical plans. Retirement benefits will be more attractive to older reservists, while health benefits and transferability of education benefits will be more attractive to those with dependents. Similarly, increases in education benefits would be more desirable for younger reservists.

Offering one form of these incentives to fill a critical shortage, then, has the potential to attract reservists with particular demographic characteristics. There are two ways to view this issue. First, the demographic composition of the group experiencing a shortage could dictate the most cost-effective form of compensation. For example, if the reservists available to fill an undermanned unit are relatively older, TSP matching or changes to reserve retirement accrual may be in order. Alternatively, improvements in one of these benefits could have the unintended consequence of changing the type of reservist that the Services can attract. For example, if the retirement system is made more generous, more senior reservists will be those attracted by the change in compensation.

A compensation “menu”

Another approach would be to offer reservists a *choice* of compensation packages.⁸ So-called compensation menus, or cafeteria-style compensation packages, allow reservists to choose the form of compensation that has the most appeal to their unique situations and preferences. For example, suppose the Services have a critical shortage of reservists in a particular skill and location who are willing to commit to reserve participation for a particular length of time. To increase the supply of volunteers, the Services could offer reservists a choice of a bonus, matching contributions to their TSPs, or the ability to transfer education benefits to their dependents. In principle, some reservists would choose the bonus, while others would choose one of the benefit package enhancements.

Offering a choice in compensation is not without precedent. For example, many active duty recruits in the Navy are offered the choice of an enlistment bonus or Navy College Fund dollars when they enlist. The advantage of offering a choice is that it encourages volunteerism of *all* types of reservists, not just those to whom a particular pay might appeal. This also reduces the possibility that only reservists with a particular demographic composition respond to a particular incentive.

8. Reference [11] reviews the literature that discusses compensation “menus,” or cafeteria-style compensation packages.

Of course, it is important to set the levels of these different forms of compensation correctly, both in terms of their ability to alleviate manning shortages and relative to one another. For example, if TSP matching contributions are too generous relative to an availability bonus, the outcome would be the same as just offering TSP matching.

What is the most cost-effective approach?

While economic theory provides general principles for constructing a compensation system, it is limited to a narrowing of the possibilities that policy-makers have for cost-effective change. Specifically, economic theory cannot predict the exact *magnitudes* of compensation necessary to elicit sufficient numbers of volunteers.

When considering potential changes, the typical approach is to estimate people's responsiveness to historical changes in compensation and then use these estimates to predict the level of compensation needed to induce the desired behavioral response (e.g., see [12]). While this approach is often useful, it does not help inform the development of tools to support the CoS. There are two primary reasons for this. First, existing tools for compensating reservists are very limited. For example, bonus levels rarely change, and all personnel eligible for a particular bonus typically receive the same amount. This restricts any variation in bonus levels to changes over time in the eligible population. Consequently, it is difficult to estimate a precise relationship between changes in compensation and changes in reservist behavior [13]. Second, changes to compensation suggested by economic theory can be far outside the scope of the existing compensation system. In some cases, it is possible that the magnitudes of compensation necessary to support the CoS are significantly larger than current authorities. In other cases, the most cost-effective option could be the development of additional authorities that have never been used. Even if precise behavioral estimates were available, then, extrapolations from historical data to predict future behavior would be highly tenuous.

For these reasons, it is necessary to collect additional data on the responsiveness of reservists to changes in compensation. In the remainder of this research memorandum, we discuss the collection

and interpretation of these data. Before collecting these data, however, we spoke with members of the Selected Reserve to obtain their perspective on potential changes to the compensation system in general and in the context of the CoS. These conversations guided our data collection efforts, and their responses are likely to help policymakers when implementing the CoS. Consequently, we summarize these conversations in the following section, before turning to a description of our data collection strategy and an interpretation of these results.

Focus group discussions

Between October 2003 and March 2004, we talked with reservists from each component, with the exception of the Army National Guard.⁹ For each of those Services, we conducted at least two focus groups and met with a mix of officers and enlisted personnel.¹⁰ The open forums included discussions about mobilization, potential policy changes that could encourage voluntary participation, potential improvements to compensation, and concerns about implementation of the Continuum of Service. In this section, we summarize our conversations about each of these issues.

Mobilizations

Several of the reservists with whom we spoke had recently been mobilized, and many of these had been deployed in support of Operation Enduring Freedom and/or Operation Iraqi Freedom. These reservists frequently expressed dissatisfaction about several aspects of their mobilization, and units universally alleged that these factors were having a substantive, negative effect on recruiting and retention. Reservists' comments about mobilization fell into four general categories: (1) lack of information on the timing and length of their

9. We repeatedly tried to schedule focus groups with Army National Guard units. However, each of the units we contacted was unable to participate due to schedule constraints. Given the similarities in feedback from each unit in the other components, we believe that our focus group results are generally representative of what we would have discussed with Army National Guard units.

10. We would like to thank CAPT Mary Gleason (Navy), Maj Vann Mathus (Air Force Reserve), Lt Col Nilda Urrutia (Air National Guard), Mr. Billy Thomas (Army Reserve), Maj Gregory Hill (Marine Corps), and LCDR Kenneth Stefansin, LCDR Michael Pierson, and CDR Quain Kahler (Coast Guard) for their assistance in coordinating the focus groups.

mobilizations, (2) lack of Service support for their families while reservists were deployed, (3) loss in income, and (4) concerns about logistics.

Timing and length of mobilizations

The biggest source of dissatisfaction, and the most frequently expressed concern, was a lack of communication about the length of the mobilization, as well as start/end dates. Several reservists were never told exactly when they would be mobilized, and many had their start dates changed before being mobilized. Many focus group participants did not feel that they were given adequate notice between receiving mobilization orders and actually being mobilized. In general, these reservists felt that being “left in limbo” resulted in both (nonmilitary) career and personal disruptions. In addition, several reservists stated that uncertainty about the timing and length of mobilizations was the principal reason that many reservists left before an expected mobilization or shortly after returning from deployment.

Service support for families

Relative satisfaction with Service support for reservists’ families while mobilized or deployed varied by unit, not by reservist within a unit. Furthermore, there did not appear to be substantive differences in satisfaction with family support by component. Descriptions of this support ranged from “excellent” in one unit to “inadequate and unorganized” in other units.

In units where family support was considered less than ideal, many reservists felt that the timing of informational sessions for the family was poor and the content provided was deficient. For example, these sessions were scheduled shortly before activation, when reservists and their families were under numerous other time constraints. In terms of content, units dissatisfied with support for their families felt that these sessions addressed only legal issues (e.g., filling out paperwork) and did not provide substantive information about the actual mobilization or how the family could assist in the reservist’s transition into civilian life following deployment.

Suggestions to improve the family support system included mailing out informational packets to families before an activation, creating family networks for use during an activation, and compiling and distributing necessary resources at one centralized location. Units that were generally satisfied with the level of family support also indicated that several of these suggestions were available and useful to their families. In other words, the aspects of family support that dissatisfied units mentioned were features of family support that satisfied units felt were helpful to their families.

Dissatisfaction with compensation while mobilized

Many, but not all, focus group participants stated that they earned less while activated than they would have at their civilian jobs. Highly educated enlisted personnel (i.e., people with Bachelor's degrees or higher) were the most vocal about the earnings penalty associated with their mobilization. In addition, some students lost all or portions of tuition assistance when midsemester activations were announced, without a commensurate reduction in their financial obligation to their educational institution. Across all focus groups, the consensus was that self-employed reservists were hurt the most financially; even reservists who were not self-employed felt that mobilizations and deployments penalized the self-employed the most.

Several participants mentioned morale problems during the mobilization that resulted from units being compensated less than other units. These disparities appeared to be the result of administrative decisions (e.g., a unit commander failing to fill out the appropriate paperwork) or, in another cited example, one unit receiving mess hall privileges while the other units received per diem. Some reservists also cited substantive delays in receiving compensation while activated, as well as errors in the amount that they received. In some cases, reservists were asked to reimburse the government when it was discovered that they had been overcompensated; these reimbursement requests came several months after the reservist had been demobilized.

Logistical concerns

In addition, reservists frequently cited logistical concerns with activations and deployments. Mobilization centers were described as “crowded,” and reservists felt that there was often no training or work for them while at the mobilization center. Servicemembers who were activated but not deployed felt that this status caused morale problems and also contributed to health problems (from overcrowded mobilization centers).

Several reservists who had deployed felt they were not adequately equipped. During some deployments, Reserve and Guard members described having to buy or use personal items, such as computers, hand radios, and batteries. Other deployed focus group participants described sharing equipment, such as “hot vesting it” (i.e., swapping flight vests between missions), or a driver and gunner sharing one pair of night vision goggles during a mission. The lack of equipment did not appear to be a persistent or pervasive problem. In some cases, equipment was eventually provided, and, as one reservist noted, “the other units had equipment.”

Voluntary participation

Focus group participants had several suggestions for how the Services could increase voluntary participation. When discussing reservist participation, most participants focused on increases in participation and immediately emphasized that “it’s not all about pay.” After discussing their ideas about potential non-pay changes that would increase voluntary participation, however, reservists quickly moved to a discussion about changes to compensation that would encourage them to participate. We will focus on compensation in the next section and briefly discuss non-pay-related suggestions here.

Several reservists noted that, if the aforementioned concerns about mobilization were adequately addressed, voluntary participation would increase without any other changes to the system. Participants frequently cited the need to reduce uncertainty surrounding the timing/length of mobilizations and deployments. Addressing the previous concerns, increasing participation options and increasing

incentives were the most commonly provided suggestions on how to increase participation. In addition, several reservists felt that providing choice in the location, timing, or type of deployment activity would also encourage more people to volunteer.

Focus group participants also felt that positions could be created that worked around reservists' nonmilitary lives. For example, college students could be mobilized or deployed during their summer or winter breaks, and parents could man drill site posts during school hours. In addition, reservists could be allowed to volunteer for backfill or training positions, and, when appropriate, families could even accompany reservists when they were mobilized and stationed within the United States.

Some focus group participants mentioned that they wanted to participate more but were limited in the extent to which they were allowed to participate. For example, retirement requirements forced some reservists to leave the Service despite an interest in continuing to serve. These reservists were surprised that the Services did not want to retain them since older reservists typically have more combat experience and frequently act as mentors to younger service members, in both the Active and Reserve Components.

Promotion and training were cited as incentives to increase drilling and mobilization participation. For example, reservists believed that enhanced promotion opportunities would be an effective reward for participation. Although training was not mentioned as often as promotion, it was discussed as an incentive to volunteer for deployments. Reservists could be rewarded for activations by receiving additional or specialized training. Another suggestion was to have annual training in "interesting locales," such as Japan instead of Fort Dix.

The issue of using specialized, "fun" training as a retention, enlistment, or participation incentive was often raised in the context of overall training concerns. Reservists did not feel that they had adequate access to the "active controlled schools." In addition, some felt that their training was insufficient due to unaccommodating drill sites and/or unavailability of equipment (e.g., trucks, guns, and ammunition). Many noted a lack of training in realistic settings (specifically, driving and repairing trucks in sand conditions).

Compensation

Each focus group quickly gravitated to a discussion of changes to compensation that would increase voluntary participation in a CoS. The following were suggested improvements to compensation that participants felt would improve both voluntary participation and recruiting/retention in the RC:

- Financial remuneration
 - Per diem for drill weekends
 - Higher monetary compensation during activations
 - Pay to make up at least some of the difference between civilian and military pay for those who suffer earnings loss while activated
 - Tax-free pay and bonuses
 - Mobilization bonuses
- Retirement
 - Receive retirement benefits at:
 - 20 years of service (i.e., active-duty retirement system)
 - Age 55 (at 30 years of service)
 - Reduce retirement age 1 year for each year of mobilization
 - Make TSP matching contributions
 - Provide higher retirement benefits for frequently activated reservists
- Health care benefits
 - Allow reservists to purchase TRICARE for themselves and their dependents while not activated
 - Pay for reservists to retain their own civilian doctors while deployed

- Education benefits
 - Transferability of GI Bill benefits to dependents
 - Extend the period during which GI Bill benefits could be used
 - Increase levels of education benefits.

In general, respondents expressed a relative preference for these changes to compensation in the way that one would expect. For example, officers and older reservists were more interested in changes to retirement; junior enlisted personnel indicated that changes to the reserve retirement system would have no effect on their participation or retention decisions. Reservists with dependents were more interested in changes that would benefit their families (e.g., transferability of education benefits or enhancements to health care). Younger reservists were relatively interested in improvements to cash compensation and enhanced education benefits.

Implementation of the CoS

Focus group participants also had several concerns about actual implementation of the CoS. The main concern was how employers would react to an increase in participation—whether voluntary or involuntary. Reservists were convinced that higher levels of participation would cause civilian employers to reduce hiring and retention of reservists. One participant noted that “a reservist looking for a job will take his reserve experience off his resume.”

In the same vein, focus group participants were concerned that any increase in voluntary participation would adversely affect their civilian job security. Although the Uniformed Services Employment and Reemployment Rights Act (USERRA) explicitly applies to both voluntary and involuntary orders, focus group participants believed that USERRA did *not* provide any job protection if activation was voluntary. If orders were going to be issued as “voluntary mobilizations,” reservists said they would definitely not be willing to volunteer.

Suggestions for how civilian employers could be encouraged to support increased participation included the following:

- Make employer support of reservists a condition of receiving government contracts.
- Provide tax credits to any employer that makes up any military–civilian differential during activation periods.
- Enforce USERRA more strictly.
- Provide TRICARE for all reservists regardless of their employment status.

In addition, reservists felt that they were not adequately compensated for their *current* workload, leading to doubt and heavy skepticism as to whether reservists would be fairly compensated in a CoS. Even without activations, most reservists with whom we spoke work more than the “traditional” 38 days a year, and some of this additional work is done without compensation. Specific examples include planning for and organizing activities for drilling weekends, meeting training requirements, and traveling long distances to drill sites.

Finally, focus group participants were very interested in how the CoS would actually be implemented. Participants wondered whether deployments would still be unit based, whether reservists would be classified into units based on the extent to which they were willing to participate, and whether units would have a tiered system based on a reservist’s employment contract with the RC.

Assessment of feedback from reservists

Focus group discussions can be informative, but one must exercise caution when interpreting results from these sessions or the information revealed can be misleading. For instance, it would be a mistake to conclude that the negative comments surrounding reserve employment are representative of the views of all reservists. While we made an effort to involve all attendees in our discussions, reservists with the strongest opinions were the ones who repeatedly voiced their concerns and complaints. In addition, it is likely that reservists with the strongest opinions were also those who made themselves available for

the focus group discussions. In contrast, reservists who were satisfied with the Service may not have felt a need to attend the discussions. Both of these effects would result in feedback that is more pessimistic than the average reservist.

However, the feedback we did receive reflects real concerns of actual reservists, and the value of this feedback cannot be overstated. It was clear that reservists appreciated the opportunity to voice their concerns about how they are being managed and to offer suggestions for improving reservist management. Participants were very vocal, and these responses can often communicate information in a way that responses to surveys cannot. Crafting changes to policy that reflect actual concerns of reservists is likely to be more responsive to the needs of reservists than policy-makers' attempts to initiate reforms based on what they *believe* reservists will value or appreciate.

Furthermore, reservist preferences for compensation changes are closely aligned with predictions of economic theory. This leads us to believe that initiating compensation reforms along the dimensions recommended by our focus groups would result in policy changes that more cost-effectively target compensation. In other words, while the recruiting and retention environment might not be as poor as focus group participants suggested it was, the changes to compensation advocated by participants are likely to alleviate any recruiting and retention problems that do exist.

Finally, we note that participants had several suggestions that would improve recruiting and retention, as well as voluntary participation in the CoS, *without any changes in compensation*. The consensus was that, if the current system functioned the way that it was intended, several existing problems could be eliminated without adding to the compensation package. In the survey we fielded to reservists, we tried to address a few of these recommended changes, although the scope of some of the current problems prevented us from addressing all of them. Nevertheless, policy-makers should view the feedback from our focus group participants as an opportunity to improve the way that reservists are managed.



Continuum-of-Service Survey

Choice-based conjoint

As we have discussed, it is necessary to collect additional data on the responsiveness of reservists to changes in compensation. Existing data either have little variation in compensation or provide little information as to how people will respond to dramatic changes in the personnel management and compensation systems.

Choice-based conjoint (CBC) surveys overcome these limitations by explicitly asking respondents to reveal preferences for, in our specific case, different changes in compensation and participation levels.¹¹ It is important to recognize that respondents are providing us with stated preferences and that there is no guarantee that actual behavior will mimic stated preferences. These data can help *predict* behavioral change, but these estimates are more tenuous than those based on actual changes in behavior. Therefore, the CBC survey data can only supplement, but not replace, behavioral data.

In contrast to traditional surveys, the CBC approach asks respondents to express preferences along several dimensions simultaneously. Intuitively, this strategy attempts to replicate real-world decision-making. Choices are rarely made holding “all else constant” in practice; instead, people choose from two (or more) items that differ in multiple ways. By observing the decision-making patterns of respondents in a CBC framework, however, the researcher obtains some insight into how people make *tradeoffs* along these dimensions.

11. See [14] for an in-depth discussion of the different assumptions implicit in using revealed and stated preference data.

Characteristics of reserve service

We worked closely with the Deputy Assistant Secretary of Defense for Reserve Affairs (Manpower and Personnel) and his staff to develop this survey. We were asked to focus our survey on current members of the Selected Reserve. It is important to note that this is just one of many different populations that could be affected by a CoS. For example, this choice of sample does not allow us to assess the extent to which potential recruits would be influenced by changes to reservist participation and compensation. Similarly, a survey of current members of the Selected Reserve does not allow us to analyze the responsiveness to these changes of active-duty servicemembers or members of the Individual Ready Reserve (IRR). This does limit some aspects of the Continuum of Service that we can analyze.¹² Focusing on the Selected Reserve, however, does allow us to concentrate on a population that is relatively easy to survey (contrasted with, for example, a population of potential recruits) and that has a relatively good understanding of the current environment in which reservists are working.

In designing the CBC portion of our survey, we asked respondents to consider eight characteristics of reserve service that fell into three categories: (1) extent of participation in the RC, (2) financial compensation, and (3) retirement incentives. The first category concerns potential changes to reservist participation that one might observe with a CoS. The second and third categories include potential changes to compensation that focus group participants suggested would encourage voluntary participation in a CoS.

Although several focus group participants advocated changes in educational and health care benefits, the FY05 National Defense Authorization Act¹³ modified these benefits for reservists. Consequently, we chose to *not* include these benefits in our survey.

12. Furthermore, it is possible that members of the Selected Reserve have different preferences for participation and for compensation than potential recruits and members of the IRR.

13. Our focus group discussions were conducted in early FY04.

Extent of participation in the Reserve and Guard Components

We chose three separate features of reservist participation on which to focus. The first was a person's *level of participation*—the number of duty days to which a reservist would be willing to voluntarily commit per year. In addition to the traditional 38-day requirement, we asked respondents to consider participation levels that exceeded the amount typically associated with the RC. While the concept of the on-call reservist is an important feature of the CoS, we do not focus on reservist participation without an explicit requirement of “duty days per year” since this option would likely be more applicable to members of the IRR.

The second and third features attempted to address focus group participants' concerns about the *predictability* of reserve service. We asked respondents to consider the length of time they spent *activated* over a 6-year period, as well as the extent to which any *mobilization* was spent outside the continental United States (OCONUS). With activations, policy-makers currently manage the Selected Reserve such that a reservist can expect to be activated for 12 months within a 6-year period. However, we also asked respondents to assess scenarios in which they were activated both more and less frequently than this amount. Respondents were explicitly told that this amount could be during one, single activation or spread across multiple activations within a six-year window. With mobilizations, policy-makers have no rule of thumb concerning the extent to which reservists are sent OCONUS, so respondents were asked to consider varying percentages of their mobilization.

Financial compensation

To characterize potential changes to financial compensation in a CoS, we presented respondents with different types of bonuses. The first, an *affiliation bonus*, was described as cash compensation received for every month of Reserve or Guard affiliation. This bonus would be paid each month a person remained affiliated with the RC, *regardless* of the extent to which he or she actually participates. In principle, this bonus authority would be flexible enough to apply to on-call reservists, as well as to those who choose to participate significantly more than the traditional 38-day requirement.

The second, a *mobilization bonus*, was described as cash compensation received for every month that the reservist is mobilized. In principle, this form of compensation could be used in conjunction with, if desired, the affiliation bonus to provide policy-makers with a flexible way in which to compensate reservists. Both types of bonuses were described to respondents as increases to current levels of compensation and subject to all applicable local, state, and federal taxes. The Services do not currently offer these types of bonuses, but respondents were presented with varying amounts of these bonuses (including the status quo) in the survey.¹⁴

Retirement incentives

Finally, we characterized potential changes in retirement incentives three separate ways. The first was the extent to which the Services *match Thrift Savings Plan (TSP) contributions*. The legislation authorizing Servicemember participation in the TSP also provided the Secretary of each Service the authority to designate “critical specialties” that would be eligible for matching contributions; however, TSP matching authority has not yet been used by any Service. Respondents were presented with varying percentages of basic pay (including the status quo) that, when placed in the TSP, the Services would contribute to an individual’s account. For example, if the Services match up to 5 percent, a person who contributes up to 5 percent of basic pay to his or her TSP account would receive an equal contribution by the Service to that account.¹⁵

The second and third changes to retirement incentives involved more substantive changes to the retirement system. Personnel were presented with changes in the *retirement age*, the age at which reservists are eligible to receive retirement benefits. Respondents were presented with different scenarios that reduced the retirement age from its current level (age 60). In addition, respondents were presented

14. The Services do currently offer an “affiliation bonus,” but it is much more limited in scope than the affiliation bonus that would support voluntary participation in a CoS.

15. In this example, people who chose to contribute more than 5 percent of basic pay would only receive a matching contribution equal to 5 percent of their basic pay.

with varying increases in *annual affiliation retirement points*. Retirement points are used in the calculation of retirement benefits, and respondents were advised that these additional points would be received regardless of the extent to which they actually participate.

Table 1 summarizes the characteristics of reserve service we asked respondents to consider when evaluating their decision to affiliate with the RC. For each characteristic, table 1 also includes the different levels faced by respondents when taking the survey.

Table 1. Continuum-of-Service Survey attribute levels

Participation Level			
Obligations of 38 duty days or fewer per year	Obligation of 39 to 90 duty days per year	Obligation of 91 to 180 duty days per year	Obligation of more than 180 duty day per year
Activations			
Activated fewer than 12 months every 6 years	Activated 12 months every 6 years	Activated 24 months every 6 years	Activated 36 months every 6 years
OCONUS Deployments			
0% of mobilization is spent OCONUS	30% of mobilization is spent OCONUS	60% of mobilization is spent OCONUS	90% of mobilization is spent OCONUS
Affiliation Bonus			
\$0 monthly affiliation bonus	\$200 monthly affiliation bonus	\$500 monthly affiliation bonus	\$1,000 monthly affiliation bonus
Mobilization Bonus			
\$0 bonus per month of mobilization	\$200 bonus per month of mobilization	\$500 bonus per month of mobilization	\$1,000 bonus per month of mobilization
Thrift Savings Plan Match			
0% match	TSP match up to 3% of basic pay	TSP match up to 5% of basic pay	TSP match up to 7% of basic pay
Retirement Age			
Retirement pay received at age 60, no change	Retirement pay received at age 58	Retirement pay received at age 55	Retirement pay received at mandatory separation
Annual Affiliation Retirement Points			
No additional retirement points received	Automatically receive 15 retirement points annually	Automatically receive 30 retirement points annually	Automatically receive 50 retirement points annually

The survey we fielded to reservists consisted of 19 CBC questions.¹⁶ For each question, respondents were presented with three different “packages” that consisted of randomly selected levels (from table 1) of each of the eight attributes we use to characterize reserve service.¹⁷ Respondents were asked to review the three different packages and, assuming that the packages are identical in all ways not shown, choose the one they most prefer. In addition, respondents were given the opportunity to indicate that they were planning to leave the RC and that none of the three packages would convince them to stay. The following section contains an example of an actual CBC question, as well as a discussion of how data collected from responses to these questions can be interpreted.

An example of choice-based conjoint

Table 2 replicates an actual CBC question asked in the survey. Each column contains eight different characteristics of reserve service that make up a package of pay, benefits, and participation in the RC. Respondents can compare the levels of each attribute in the different packages by looking at each row individually. For example, package 1 offers only a \$500 monthly affiliation bonus; package 2 offers \$1,000 per month, and package 3 offers only \$200 per month.

In this example, however, the level of affiliation bonus is not the only dimension in which these packages differ. Furthermore, the package with the most generous affiliation bonus (package 2) has other dimensions in which it is less generous (e.g., mobilization bonus). In other words, no package *strictly dominates* another; no package has attributes that are all more desirable than those in another package. It is this feature that forces respondents to make tradeoffs and reveal their preferences for different aspects of compensation and participation. If a person prefers package 1, for example, we can presume that

16. In addition, respondents are asked 27 “traditional” survey questions that include information on demographic characteristics, mobilization experiences, and reenlistment intentions. For a complete listing of these questions, see appendix B of reference [7].

17. These packages are randomly selected for each question, so that no two respondents are presented with identical surveys.

the combination of compensation and participation options listed in package 1 is preferred by the respondent to the combinations listed in both packages 2 and 3.

Table 2. Example of a Continuum-of-Service Survey CBC question

Which of the following reserve pay, work, and benefits packages is best for you? Assume the packages are identical in all ways not shown. From these four packages, choose the package you prefer the most.			
Package 1	Package 2	Package 3	Package 4
Obligation of 39 to 90 duty days per year	Obligation of over 180 duty days per year	Obligation of 91 to 180 duty days per year	I plan to leave the Reserves and none of these options would convince me to stay
Activated 24 months every 6 years	Activated 12 months every 6 years	Activated less than 12 months every 6 years	
90% of mobilization is spent OCONUS ^a	60% of mobilization is spent OCONUS	30% of mobilization is spent OCONUS	
\$500 monthly affiliation bonus	\$1,000 monthly affiliation bonus	\$200 monthly affiliation bonus	
\$1,000 bonus per month of mobilization	\$200 bonus per month of mobilization	\$500 bonus per month of mobilization	
TSP match of up to 5% of basic pay	TSP match of up to 3% of basic pay	TSP match of up to 7% of basic pay	
Retirement pay received at mandatory separation	Retirement pay received at age 60, no change	Retirement pay received at age 60, no change	
Automatically receive 50 retirement points annually	Automatically receive 30 retirement points annually	Automatically receive minimum of 15 retirement points annually	

a. Outside the continental United States.

Since the respondent answers multiple CBC questions, the researcher obtains more information about preferences than merely, from the previous example, “the person prefers reserve service that resembles package 1 to reserve service that resembles package 2 or 3.” Researchers can use the survey responses to quantify the impact of *each* attribute level on the likelihood that a package will be preferred. The technique allows one to estimate the marginal impact (i.e., the impact holding all else constant) of a change in a single attribute.

Finally, these marginal effects allow us to estimate the increase in compensation necessary to incentivize voluntary participation in a CoS. For example, suppose we estimate that, compared to a package

with a traditional 38-day service requirement, people are 2 percentage points less likely to choose a package that carries a service requirement of 39 to 90 days per year (51 percent versus 49 percent). In addition, suppose we estimate that a \$500 monthly affiliation bonus would increase the share selecting this package to 59 percent. Taken together, these results imply that, if policy-makers want to effect a 5-percentage-point increase (from 49 to 54 percent) of people willing to volunteer for a 39 to 90 days of service, a \$250 monthly affiliation bonus would convince enough reservists to choose that package.

Sample design and survey fielding

In fielding the survey instrument to reservists, our desire was to obtain a “sufficient number” of respondents from each of the Reserve and Guard Components’ enlisted and officer populations.¹⁸ In general, the larger the sample, the greater our ability to disaggregate the data and examine differences in the responses of different groups. At a minimum, however, our goal was to obtain enough respondents from each subsample of interest to obtain precise estimates for these subsamples.¹⁹ The Defense Manpower Data Center (DMDC) indicated that we could expect 30 to 38 percent of those invited to take the survey to actually respond and submit their results. This expected response rate motivated our sampling strategy.

Sampling strategy

In drawing a sample, DMDC strongly recommended that we restrict our sample to members of the Selected Reserve with “current” addresses. Our point of contact advised us that contact information for reservists was notoriously poor and that drawing a sample from the entire population of reservists would result in extremely low response rates. Note that reservists with so-called current addresses

18. Throughout the remainder of this document, we will use the terminology and/or abbreviations in parentheses when referring to the following individual components: Army Reserve (USAR), Army National Guard (ARNG), Air Force Reserve (USAFR), Air National Guard (ANG), Navy Reserve (Navy, USNR), Marine Corps Reserve (Marine Corps, USMCR), and Coast Guard Reserve (Coast Guard, USCGR).

19. The 23 subsamples of interest were based on component and rank, and are listed in table 7 of appendix C of reference [7]. Following [15], we estimated that 407 observations within a subsample would be necessary to obtain precise estimates for the subsample. However, since contact information was not available for all reservists, it was not feasible to obtain a sufficient number of respondents from each subsample.

are probably *not* a representative sample of the entire population. DMDC considers an address current if a reservist's contact information was recently updated or if that reservist was recently (and successfully) contacted. Consequently, we would expect a sample of reservists with current addresses to be more likely to have been recently mobilized or to have had a change in dependency status. Given our concerns about response rates and our desire to examine differences in the responses of different groups, however, we followed DMDC's suggestion and focused on reservists with addresses considered current within the past 2 years.

From this subset of the Selected Reserve, DMDC generated a list of 26,814 names with mailing (and some) e-mail addresses as of April 2005. DMDC followed a *stratified random sampling strategy*. This approach oversamples from subgroups with small populations to generate a sufficient number of respondents from that subgroup. DMDC oversampled the Coast Guard, E-5 to E-9 and commissioned officers in the Marine Corps, and warrant officers in the Army Reserve.²⁰ We will refer to this list from DMDC as the address list.

Even if reservists with current addresses are representative of all reservists, this sampling strategy results in an address list that is *not representative* of the entire Selected Reserve population. If response rates are identical in all subgroups, our sample of respondents will be disproportionately drawn from the subgroups oversampled by DMDC. Further, the extent to which response rates differ by subgroup will likely skew our data away from being representative of the entire population, so any results from our survey must be "adjusted" to account for these differences. Unless otherwise noted, results reported in this research memorandum are "weighted" to more accurately reflect the population currently serving in the Selected Reserve.²¹

Survey timeline and response rates

On July 9, 2005, each reservist in the address list was mailed a packet of information that included (a) a formal invitation to participate in

20. Given the size of the warrant officer community, we restricted our attention to those serving in the Army National Guard and Army Reserve.

the survey, signed by the Assistant Secretary of Defense for Reserve Affairs, (b) instructions on how to access the survey on the internet or request a paper copy, and (c) a list of the eight CBC attributes and their definitions. A reminder postcard and a reminder e-mail went to each reservist on July 30 and August 16, 2005, respectively.

Of the 26,814 invitations sent by mail, the United States Postal Service (USPS) was unable to deliver 1,813 of the original packets of information. Inspection of the returned letters suggests that they were *not* returned because of incomplete address information or refusal of acceptance by the addressee. Rather, it appears that these people did not reside at the location contained in DMDC's database and that no accurate forwarding information was provided.

Along with the mailed invitations, we were able to contact over 15,000 reservists in the address list by e-mail.²² Although we have no way to assess the extent to which it occurred, we were able to successfully contact some people via e-mail who did not receive the original packet of information.

Table 3 provides data on response rates. For each Reserve and Guard Component, we list the number of people in the Selected Reserve, the number of reservists surveyed, and the number of respondents. The final column lists the effective response rate, which is adjusted to

21. We are grateful to Richard Riemer at DMDC for advising us on constructing sample weights. These weights are constructed for 62 different subgroups, defined by component, rank and age sub-group. We attempted to weight all components and rank sub-groups by age; however, small sample sizes prevented us from accurately weighting by age. These weights, and the methodology used to construct these weights, are discussed in appendix C of reference [7].

22. Unless noted otherwise, we emailed everyone DMDC had an email address for. We did not email individuals who received the original packet of information and then asked that they not receive any additional requests to participate in surveys. Other people contacted CNA and indicated that the survey was "not applicable" (e.g., transferred to the active component or retired). Some family members gave us additional contact information for reservists who had recently been activated and were currently mobilized or in training. In those cases, we mailed out a paper version of the survey.

account for the packets of information that the USPS was unable to deliver. As shown, the overall response rate to the survey was just under 12 percent. There is, however, significant variation in response rates by component. For example, the Navy response rate was 17.6 percent, while the Marine Corps response rate was just under 6 percent.

Table 3. Number of reservists in the population, the address list, and the sample

Component	Population ^a	Address list ^b	Sample	Response rate ^c
Army Reserve	193,627	5,151	524	10.9%
Army National Guard	331,017	5,428	456	9.0%
Air Force Reserve	75,305	4,071	578	15.2%
Air National Guard	105,852	4,071	484	12.8%
Navy Reserve	77,396	2,929	480	17.6%
Marine Corps Reserve	39,964	3,463	190	5.9%
Coast Guard Reserve	7,997	1,701	247	15.6%
Total	831,158	26,814	2,959	11.8%

a. As of April 2005.

b. Provided by DMDC in April 2005.

c. We assume that returned information packets are randomly distributed across each of the components. Response rates are calculated by dividing the actual number of survey responses by this imputed number of received packets. (We have no reasonable estimate of the number of reservists who did not receive the original packet of information but did receive an e-mail invitation. Consequently, we base our response rates on the population to which the USPS was able to deliver the original packet.)

Table 4 disaggregates these data even further and lists response rates separately by sampling cell. For each Reserve and Guard Component, separate response rates are estimated for E-1s to E-4s, E-5s to E-9s, commissioned officers, and, where applicable, warrant officers. Within each component, response rates increase with paygrade: response rates are lowest for E-1s to E-4s and highest for commissioned officers, with rates for E-5s to E-9s falling in between.²³

23. For the Army Reserve and Army National Guard, response rates of warrant officers are closer to those of commissioned officers than those of enlisted personnel.

Furthermore, response rates of E-1s to E-4s are *extremely low*; response rates in these paygrades are at or below 7 percent. In the Army Reserve, Army National Guard, and Marine Corps, response rates of E-5s to E-9s also fall short of 10 percent. In contrast, response rates of commissioned officers range from 13 to 27 percent. These differences in response rates underscore the importance of presenting weighted results.

Table 4. Response rates by sampling cell (percentage)

Component	E-1 to E-4	E-5 to E-9	Commissioned officers	Warrant officers
Army Reserve	2.4	8.3	19.1	15.6
Army National Guard	2.0	6.6	13.8	13.6
Air Force Reserve	5.5	16.2	24.0	—
Air National Guard	4.2	15.0	19.0	—
Navy Reserve	7.0	11.5	25.4	—
Marine Corps Reserve	2.1	5.5	13.5	—
Coast Guard Reserve	7.1	18.6	27.3	—

As tables 3 and 4 show, response rates to the survey are significantly lower than the 30-percent response rate that motivated our sampling strategy.²⁴ The small sample sizes implied by these response rates limit the extent to which we can disaggregate the data. Intuitively, a small sample size reduces the precision of our estimates. Consequently, one cannot be confident that any conclusions drawn from these data would be generalizable to the full population of reservists with those characteristics.

This does *not* mean that we cannot use these data; it simply means that these data must be combined with other data to obtain reliable estimates. For example, while we cannot examine the behavior of enlisted personnel in the Marine Corps and compare it with enlisted personnel in the other components, we *are* able to examine the behavior of all enlisted personnel and compare it with commissioned officers.

24. In comparison, reference [14] had a 17-percent response rate for junior enlisted personnel.

Are respondents representative of all reservists?

Both our strategy of oversampling small populations and the wide variation in response rates across paygrades and components result in a sample of reservists who are *not* representative of the entire population. Sampling weights will, in principle, ensure that inferences we draw from these data are more representative of all reservists. However, our decision to sample reservists with reliable contact information has the potential to generate a sample that looks different from the entire population.

In table 5, we compare the gender, age, family status, and educational mix of our weighted sample to those of all reservists. The table shows some notable differences between our sample and the population of reservists. Specifically, our sample of respondents is older and more likely to be married, but less likely to have children.²⁵

The most troubling difference between our sample and the population of reservists is the disparity in age. Our weighting scheme tries to adjust for differences in the age distribution of our sample; however, small sample sizes in some of the age categories prevented us from making our sample completely representative in this dimension.²⁶

These differences should be kept in mind when interpreting the results of analysis. In particular, if our analysis suggests that reservists are predisposed to changes in compensation that are more attractive to older people, or to those who are married, it does not imply that the population of reservists will respond in the same way as predicted by our analysis.

25. From table 5, it appears that reservists with educational attainment beyond a high school diploma are overrepresented in our sample. However, it is well known that administrative records of Servicemembers do not accurately reflect actual educational attainment but, for many members, represent educational attainment at time of accession [16].

26. In contrast, our weighting procedure completely adjusts for differences by component and by paygrade, so that our weighted sample is exactly representative of the population in these dimensions.

Table 5. Selected characteristics of the population and the sample (percentage)

Characteristics	Population	Sample ^a
Gender		
Male	82.8	82.6
Female	17.2	17.4
Age categories		
25 or younger	30.9	20.3
26 to 30	13.5	18.3
31 to 40	29.8	34.3
41 to 50	19.4	19.4
Over 50	6.4	7.7
Marital status		
Single	48.6	42.0
Married	51.4	58.0
Number of children		
None	41.2	47.5
One or more children	58.8	52.5
Education ^b		
No high school diploma	3.8	1.1
High school graduate	69.4	50.7
Associate's degree	5.6	14.4
Bachelor's degree	14.2	21.8
Master's degree	5.6	12.1

a. Sample percentages are weighted by component, rank, and age category.

b. Percentages do not always sum to 100 because of missing information on some characteristics for some reservists in administrative records.



Mobilization history and reenlistment intentions

In this section, we discuss two sets of results from the Continuum-of-Service (CoS) Survey: respondents' mobilization histories and reenlistment intentions. These findings do not draw from the data collected with the CBC questions in the survey and, therefore, do not speak directly to the issue of changing compensation to support a CoS. However, these results are relevant to the public discussion of the use of reservists in the Global War on Terror and are likely to generate interest independent of the implementation of the CoS. Furthermore, these data provide a more complete frame of reference for interpreting our CBC results. The degree to which our respondents have been mobilized, the financial impact of these mobilizations, and stated intentions to remain in (or separate from) the military provide a context in which our CBC findings must be evaluated.

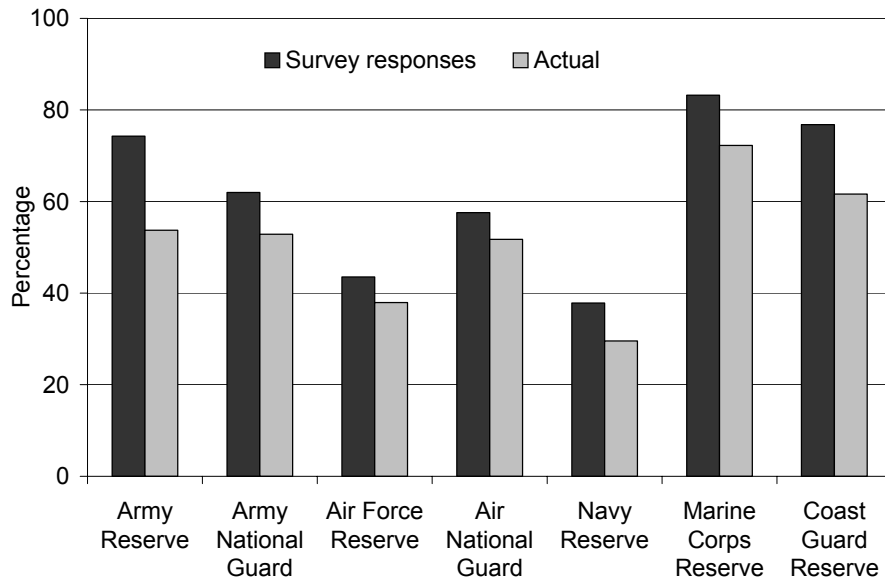
Mobilizations

To assess the extent to which our respondents have been mobilized, we examine each component separately. Given the response rates reported in the previous section, we present results for commissioned officers only. Inspection of the data leads to very similar conclusions for enlisted personnel, although we caution that these sample sizes are fairly small. Figure 1 displays the percentage of commissioned officers in our sample that have been mobilized at least once in the past 3 years. For comparison, it also displays the percentage of commissioned officers in the Selected Reserve in July 2005 that had been activated at least once in the prior 3 years.²⁷ While these data are not

27. We are grateful to Dr. Ann Parcell and Mr. David Gregory for providing and assisting us with these data. For a discussion of the database used to provide these estimates and an analysis of officer attrition, see [17]. For a comparable analysis of enlisted attrition, see [18].

strictly comparable,²⁸ they do provide us with a frame of reference in which to view responses to the survey.

Figure 1. Percentage of commissioned officers mobilized within the past 3 years



As figure 1 shows, there is significant variation across the Reserve and Guard Components in the percentage of officers that have been mobilized in the past 3 years. This variation can be found both in our sample and in the population. At one extreme, about 40 percent of Navy respondents indicated that they have been mobilized over this time period; in contrast, over 80 percent of Marine Corps respondents indicated a mobilization over the same time frame.

Furthermore, for each component, survey respondents are disproportionately likely to report being mobilized over the past 3 years. In

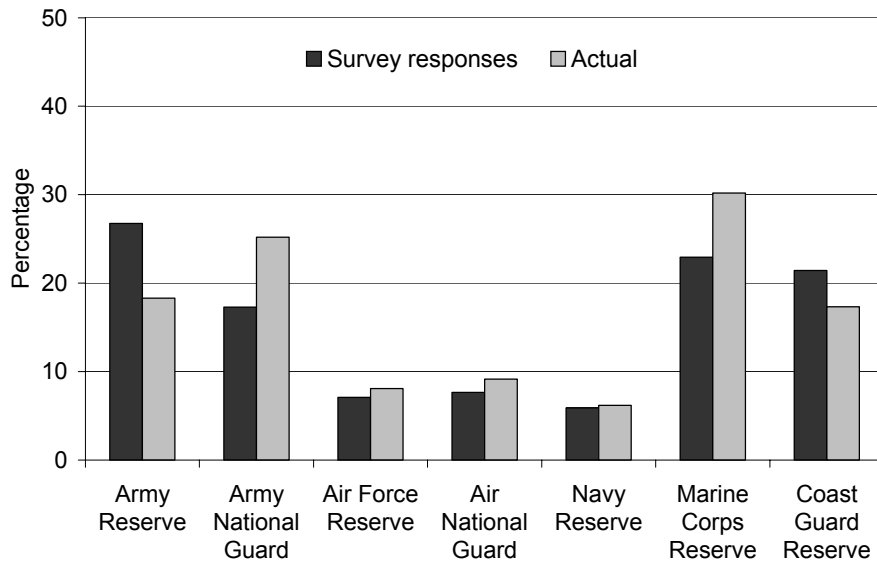
28. There are differences between activations and mobilizations; however, a discussion with the people providing these data indicated that these differences are likely to be minor.

all cases, a higher percentage of respondents report a mobilization than the administrative data show. We strongly suspect that these differences are due to our strategy of sampling reservists with “current” addresses. Since DMDC considers an address current if a reservist was recently (and successfully) contacted, it is no surprise that people in our sample are more likely to have been mobilized in the past 3 years.

Figure 2 displays the percentage of commissioned officers that are currently mobilized, both in our sample of respondents and in the population in the Selected Reserve in July 2005. A comparison of figures 1 and 2 reveals a few similarities. First, there is significant variation across components. At one extreme, about 5 percent of Navy respondents indicated that they are currently mobilized; in contrast, 27 percent of Army Reserve respondents are currently mobilized. Furthermore, the components with a large number of officers mobilized in the last 3 years all have a large number of officers currently mobilized. Specifically, the Army Reserve, Marine Corps, and Coast Guard all have at least 20 percent of officer respondents indicate that they are currently mobilized.

There are some similarities between these two measures of mobilization but differences as well. The Army National Guard and Marine Corps have a significantly lower percentage of respondents, relative to the population, indicate that they are currently mobilized. In contrast, the Army Reserve and Coast Guard have a disproportionately high percentage of respondents who are currently mobilized. All else equal, we would expect a relatively low number of respondents to be currently mobilized since a mobilization makes it less likely that the reservist would have received the invitation to participate in the survey. However, we cannot explain the relatively high number of mobilized respondents in the Army Reserve and Coast Guard.

Figure 2. Percentage of commissioned officers currently mobilized



Uncertainty surrounding mobilizations

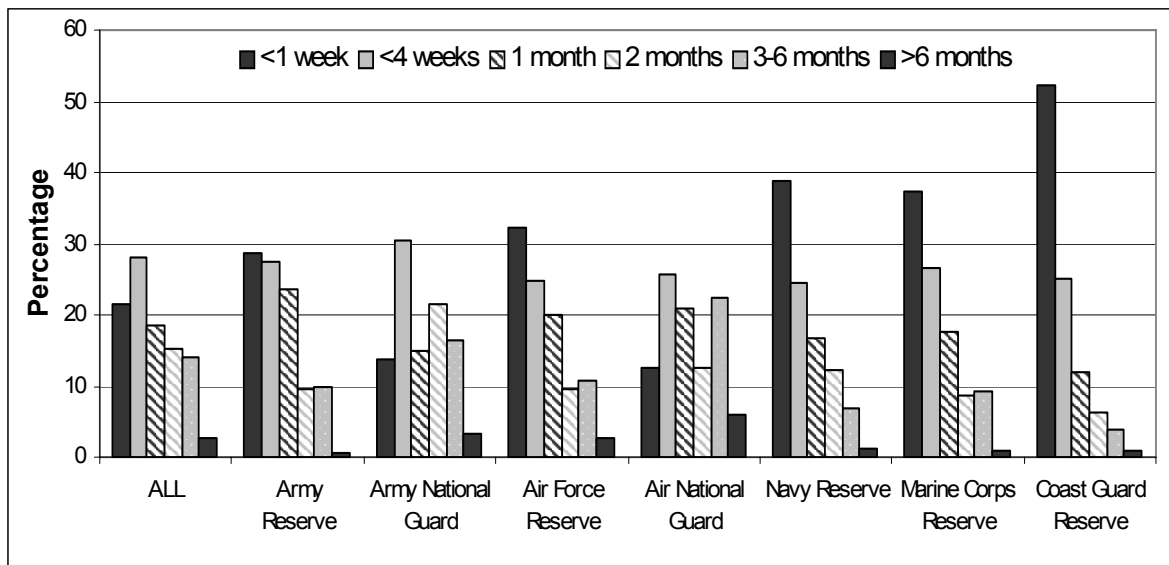
A frequent concern raised by our focus group participants was the degree of uncertainty surrounding the timing and length of mobilization. Figure 3 presents, for each component, the amount of notice respondents received before their most recent mobilization. As these data show, there is a great deal of variation in the amount of time reservists had to prepare for mobilization. In the Navy and Marine Corps, almost 40 percent had less than 1 week’s notice; in the Coast Guard, over 50 percent were notified less than 1 week in advance. In each of the five Reserve Components, at least 50 percent of respondents had less than 1 month’s notice. In contrast, over 20 percent of guardsmen had at least 3 months’ notice, and less than 50 percent were notified less than 1 month in advance.

Figure 4 shows, for each component, the length of respondents’ most recent mobilizations.²⁹ The Air Force Reserve and Air National

29. For currently mobilized respondents, it is not clear whether these data reflect reservists’ expectations about the length of mobilization or the planned length of time that they were told they would be mobilized.

Guard had a disproportionate number of relatively short mobilizations (6 months or less), while several respondents in the Army Reserve and Army National Guard had relatively long mobilizations (longer than 1 year). Unfortunately, these data do not allow us to assess the extent to which the actual length of mobilization compares with reservist expectations at the time they were mobilized.

Figure 3. Amount of notice before mobilization



Financial impact of mobilizations

Reservists were also asked how their most recent mobilizations affected their financial situation while mobilized. Figure 5 presents these data; in addition to results for the entire sample, we present the responses of enlisted personnel, commissioned officers, and warrant officers separately. About 32 percent of respondents indicated that they had lost money as a direct result of the most recent mobilization. In contrast, over 40 percent made more money while mobilized; the remainder indicated no change in their financial situation as a result of the mobilization. Figure 6 does not suggest significant differences for enlisted personnel and officers; enlisted personnel were slightly more likely to report a decrease in earnings as a result of their mobilization (32 percent to 31 percent) but were equally likely (42 percent) to report an increase in earnings.

Figure 4. Length of most recent mobilization

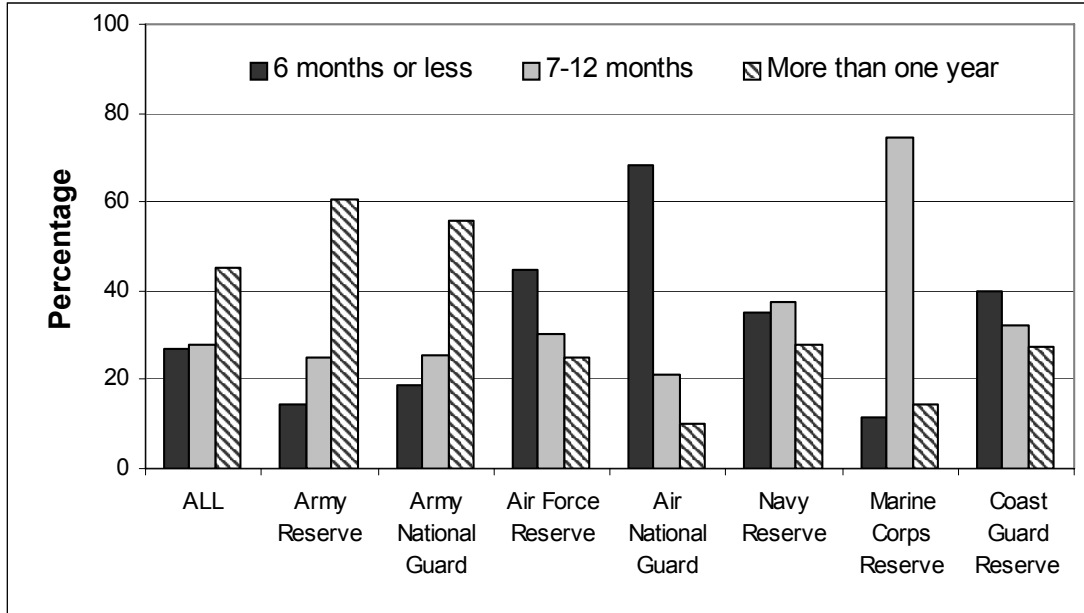
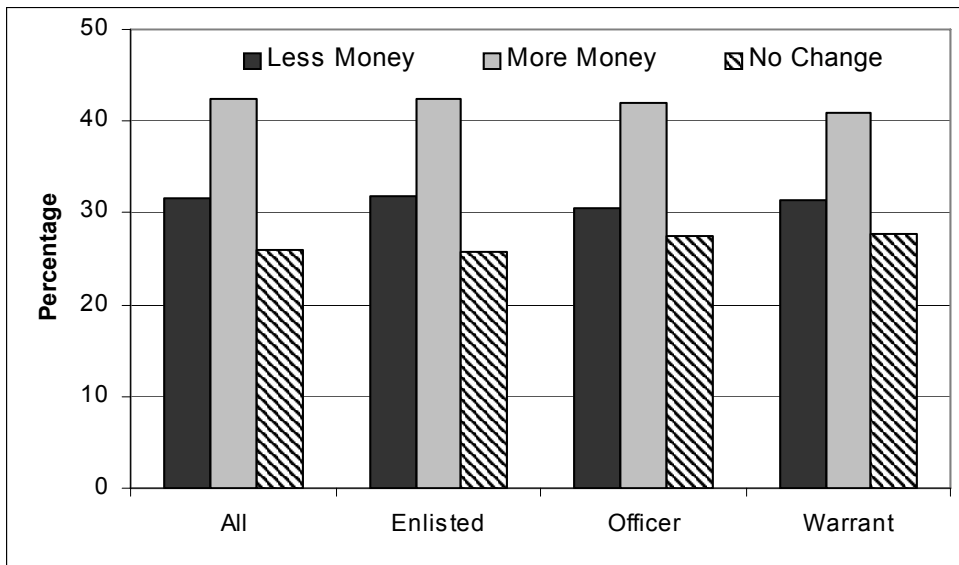
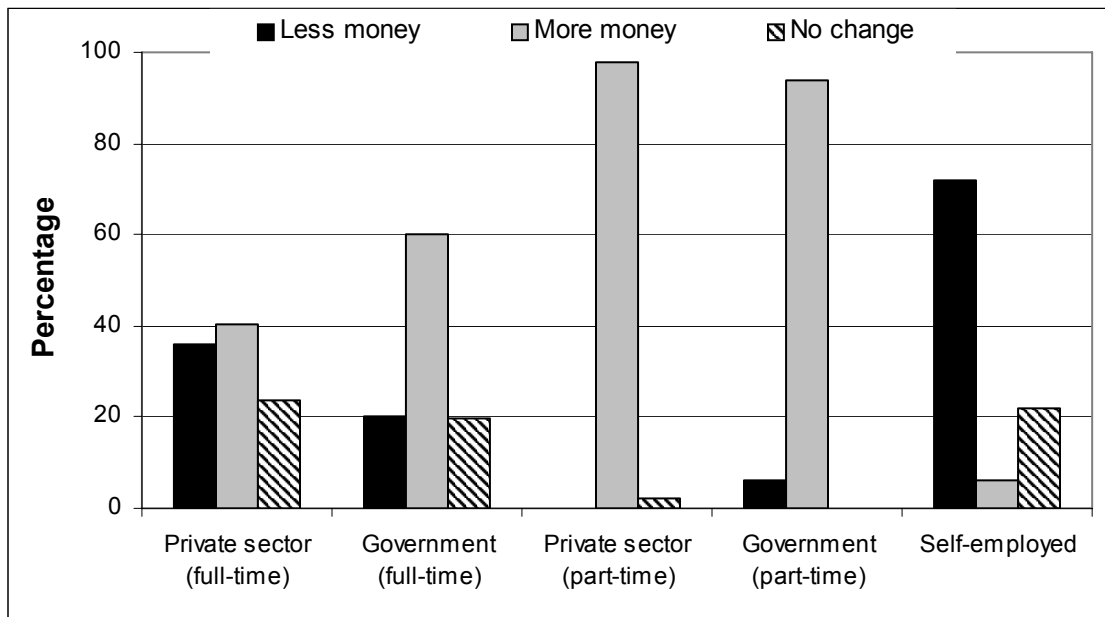


Figure 5. Financial impact of most recent mobilization



To assess the extent to which this financial impact varies by civilian employment status, we need to restrict our attention to reservists who are currently mobilized. Respondents provided their employment status at the time of the survey, while their assessment of the financial impact of mobilization is based on their most recent mobilizations. For those not currently mobilized, it is possible that their current civilian employment status is not the same as it was while mobilized. However, virtually the same percentage of reservists indicated that they had lost money as a direct result of mobilization, regardless of whether they are currently mobilized (34 percent) or mobilized within the past 3 years (32 percent).

Figure 6. Financial impact of most recent mobilization by civilian employment status



As figure 6 shows, there are significant differences in the financial impact of mobilization by civilian employment status. The overwhelming majority of the self-employed report an earnings loss due to mobilization; these data are consistent with the perceptions of our focus group participants. In contrast, relatively few full-time workers in government, and virtually no part-time workers, indicated that

mobilization had an adverse effect on their financial situations. Rather, 60 percent of full-time government employees, and more than 90 percent of part-time employees, report an increase in earnings as the result of mobilization. There is a great deal of variation in the responses of full-time, private-sector employees, with significant numbers reporting reductions in earnings, increases in earnings, and no substantive change in their financial situations.

It is instructive to compare these results with findings from two additional types of data. The first set of findings is from previous surveys of reservists. Tabulations of the 2000 Survey of Reserve Component Personnel reveal that 36 percent of reservists who had been mobilized or deployed reported a decrease in income associated with the mobilization [19]. This result is remarkably similar to our findings, regardless of whether we focus on current mobilizations (34 percent) or a person's most recent mobilization (32 percent).

More recent survey data, however, show a significantly higher percentage that report income loss. Fifty-one percent of respondents to the May 2004 Status of Forces Survey of Reserve Component Members reported a decrease in total monthly income during activation [20].³⁰ Although these data show a higher percentage reporting income loss than respondents to our survey, note that the May 2004 survey has a significantly lower percentage reporting "no change" in income (3 percent versus 28 percent). It is possible that some respondents to our survey reported "no change" in income even though they experienced small decreases (or increases) in income as a result of mobilization.³¹

30. For married and separated Reserve component members, these data include any change in spousal income as well. However, the percentage of single Reserve Component members that reported income loss (47 percent) is high enough to suggest a real increase in the percentage of all reservists that report income loss.

31. The May 2004 survey explicitly asks respondents to specify their monthly income before activation and their monthly income during activation; a \$1 decrease in income is coded as a "decrease in total monthly income during activation." In contrast, our survey simply asks respondents to report whether their income has fallen, risen, or remained constant.

The second set of findings focuses on administrative, not survey, data. For example, reference [21] contains a recent comparison of full-time earnings in civilian occupations with median military income.³² For calendar year 2003, when comparing the 70th percentile of civilian earnings with median military income, the authors estimate that 35 percent of reservists are in civilian occupations with earnings lower than median military income.³³ The authors are careful to note that this percentage is not necessarily the percentage of reservists who *actually* experienced earnings loss as a result of activation. There will be some reservists in high-earning civilian occupations who nevertheless experience earning gains when mobilized, as well as some reservists in low-earning occupations who nevertheless experience earning loss when mobilized. However, the similarity of these findings with our survey results is consistent with the notion that these two phenomena roughly offset one another.

Reference [22] uses data from the Social Security Administration to estimate earnings loss of reservists activated between 2001 and 2003. The authors estimate that, during this time, about 28 percent of reservists experienced earnings loss as a result of being activated. They also report a *decline* over time in the number of reservists that suffer earnings loss, from 32 percent in 2002 to 23 percent in 2003. This trend is noticeably different from the sharp increase in earnings loss suggested by the 2000 and 2004 surveys.³⁴ Further, the percentage of reservists that the authors estimate *actually* suffered a loss in earnings in 2003 (23 percent) is significantly lower than the percentage of respondents that *reported* earnings loss in 2004 (51 percent).

32. The authors do use survey data to estimate civilian earnings. However, these estimates of earnings are for all civilians, and not just for reservists, which mitigates potential misrepresentation bias.

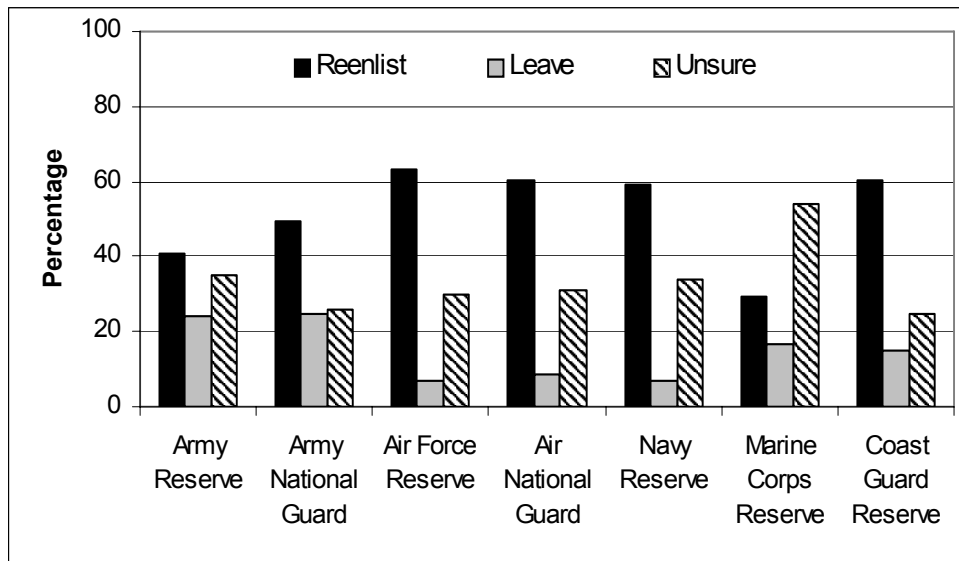
33. Calculations are based on footnote 11 and table 1 of [21]. We focus on the results using the 70th percentile of civilian earnings since median military earnings are roughly comparable to this point in the civilian earnings distribution [16]. When using median civilian earnings, the authors estimate that about 9 percent of reservists are in civilian occupations whose earnings are less than median military income.

34. The authors attribute this decrease to higher military pay in 2003, rather than to lower civilian earnings of reservists that are activated.

Reenlistment intentions

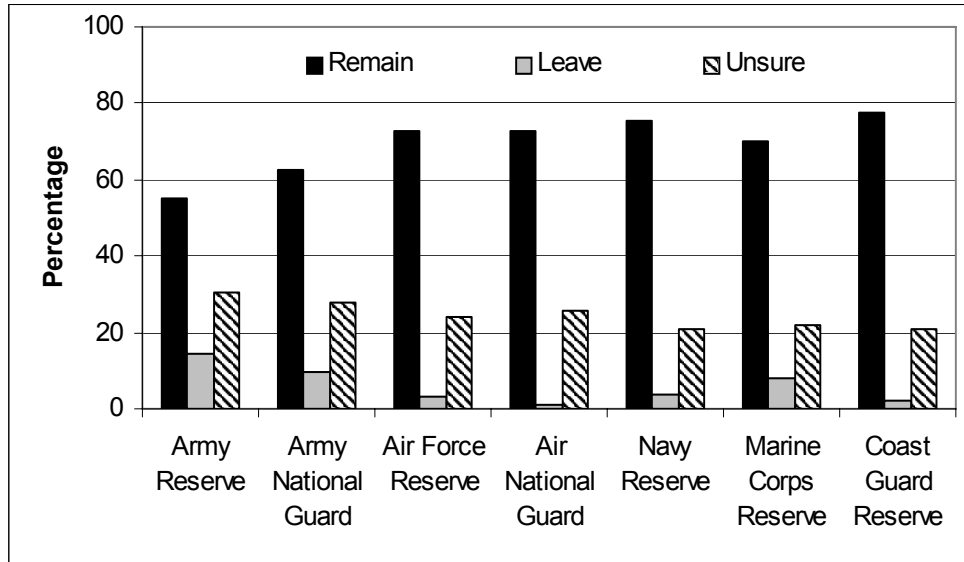
Finally, respondents were asked whether they intended to leave or to continue serving in the Guard or Reserve at the end of their current obligation. Figures 7 and 8 display these results for enlisted personnel and commissioned officers, respectively; for each figure, results are calculated separately by Reserve Component.³⁵ For enlisted personnel, the Marine Corps has the fewest respondents indicate that they intend to reenlist at the end of their current obligation, less than 30 percent; in the Army Reserve, only about 40 percent intend to reenlist. However, these two components also exhibit the most uncertainty about the reenlistment decision. In the Army Reserve, 35 percent of respondents are not sure whether they will reenlist; in the Marine Corps, 55 percent are unsure. In contrast, fewer than 10 percent of Air Force Reserve, Air National Guard, and Navy respondents intend to leave at their expiration of their current obligation.

Figure 7. Reenlistment intentions of enlisted personnel



35. Figures 7 and 8 exclude those respondents who noted that they would be retirement eligible within a year and were planning to retire. The conclusions are not substantively affected by excluding this population.

Figure 8. Retention intentions of commissioned officers



Retention intentions are higher for commissioned officers than for enlisted personnel in each component. The Army Reserve and Army National Guard have the fewest respondents indicate that they intend to remain with their component, but, like the results for enlisted, these components exhibit the most uncertainty about the retention decision. In all components, the percentage of officers that intend to separate is extremely low. With the exception of the Army Reserve, less than 10 percent of respondents intend to leave; in the Air Force Reserve, Air National Guard, Navy, and Coast Guard, 4 percent of officers or less state that they will separate from their components.

The data in figures 7 and 8 are consistent with recent tabulations of the Status of Forces Survey of Reserve Component Members [23].³⁶

36. While reenlistment intentions are similar across surveys, there appear to be some differences between stated reenlistment intentions and actual continuation rates. For example, a comparison of FY03 continuation rates [5] with the data in figures 7 and 8 reveals some differences by component. Since these data are from different years, we caution against drawing strong conclusions. It is an open empirical question, however, as to whether reenlistment intentions in the National Guard and Reserve are positively correlated with actual reenlistment behavior.

In November 2004, about 61 percent of enlisted personnel and 67 percent of officers indicated that they were “likely” or “very likely” to continue to participate in the National Guard/Reserve if they were able to do so. The Marine Corps (49 percent), Army Reserve (56 percent), and Army National Guard (58 percent) had the lowest percentages of respondents indicate that they were likely/very likely to continue; in contrast, these percentages were just under 80 percent for the Air Force Reserve, Air National Guard, and Navy.

Do mobilizations affect reenlistment intentions?

When comparing figure 8 with figure 1 (mobilized in the last 3 years) or figure 2 (currently mobilized), the reader may note that components with high mobilization rates have a higher proportion of personnel who expect to separate. Figure 9 shows the relationship between retention decisions and mobilization, displaying intentions of personnel in three mutually exclusive categories: those who are “currently mobilized,” those who have been mobilized in the past 3 years but are not currently mobilized (“previously mobilized”), and those who have not been mobilized at all in the past 3 years (“never mobilized”).³⁷

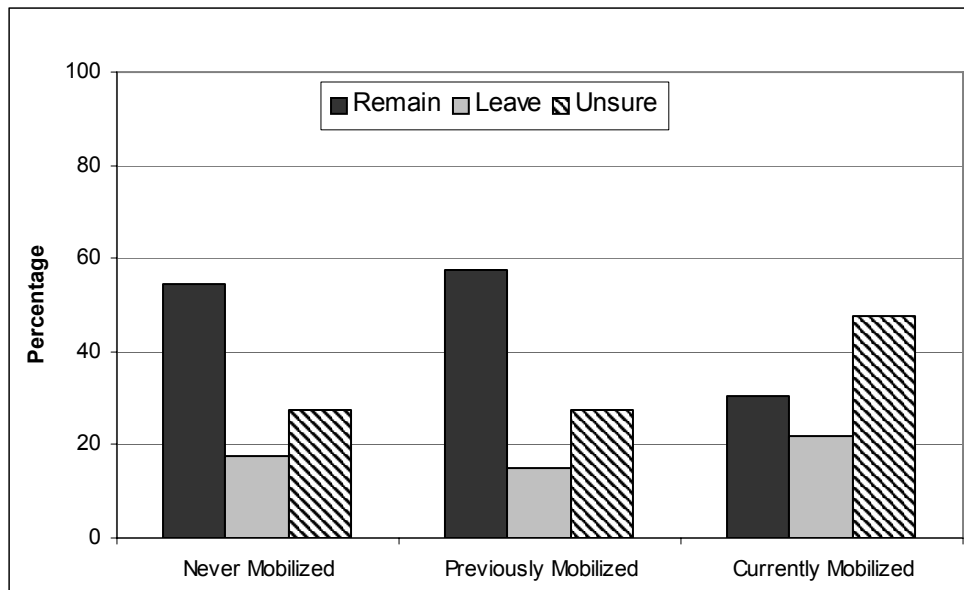
Figure 9 shows that a significantly lower proportion of mobilized reservists intend to remain with their component. The biggest effect of mobilization on retention intentions, however, appears to be an increase in *uncertainty* about the retention decision. Expected retention rates of currently mobilized personnel are 25 percentage points lower than for those who have not been mobilized; expected separation rates, however, are only 4 percentage points higher for currently mobilized personnel. The rest of the difference (21 percentage points) can be attributed to a higher proportion of currently mobilized personnel who are uncertain about their retention decision.

If one were to compare the retention intentions of only those who are currently mobilized with those who have not been mobilized in the past 3 years, one might conclude that mobilization has an adverse

37. Results are qualitatively similar when looking at commissioned officers and enlisted personnel separately.

effect on retention intentions. At the very least, it would appear as though mobilization increases the uncertainty about one's retention decision.³⁸ Closer inspection of figure 9, however, reveals a significant difference between the retention intentions of those who are currently mobilized and those who have been previously mobilized. In fact, the retention intentions of previously mobilized reservists strongly resemble those of reservists who have not been mobilized.

Figure 9. Retention intentions by mobilization status



There are three possible explanations for this pattern. First, it is possible that current mobilizations are more onerous than previous mobilizations. Second, it is possible that the “adverse effect” of mobilizations recedes in respondents’ minds over time. That is, it’s possible that previously mobilized personnel would have responded

38. Without additional data, it is not possible to determine whether those who are “unsure” about their retention decisions are more likely to stay or to leave at the time a decision must be made.

exactly the same way as the currently mobilized if they had been surveyed at that time, but their perceptions about the reserve have changed over time. Finally, it is possible that some previously mobilized personnel have already separated from the reserve and that these people would have been more likely to indicate that they intended to separate. In other words, if they had not already separated, the retention intentions of the previously mobilized would more closely resemble those of the currently mobilized. Our data cannot identify which explanation is responsible for the patterns observed in figure 9.

Figures 10 and 11 examine the relationship between retention intentions and the financial impact of mobilization, calculated separately for those who are currently mobilized (figure 10) and those who were previously mobilized in the past 3 years (figure 11). As both figures show, those whose earnings increased during mobilization are more likely to indicate that they will remain with their component than those who lost money during the mobilization. Again, the overwhelming majority of this difference can be explained by an increase in uncertainty about retention among reservists whose earnings fell during mobilization.³⁹

A reasonable interpretation of these data is that, while financial remuneration isn't the only reason that people choose to affiliate with the RC, reductions in earnings cause reservists to reevaluate whether they will continue to serve. In this context, any change in compensation to support voluntary participation in a CoS has the *potential* to prevent any decline in retention. In other words, figures 10 and 11 suggest that, if reservists were more highly compensated for a more significant commitment, uncertainty about the retention decision would decline. Figure 11 also provides evidence that this higher compensation would increase retention intentions of previously mobilized reservists.

39. Reservists whose earnings have increased during the current mobilization are also more likely to indicate that they plan to *leave* than those whose earnings have decreased during the current mobilization.

Figure 10. Retention intentions by financial impact of mobilization—currently mobilized

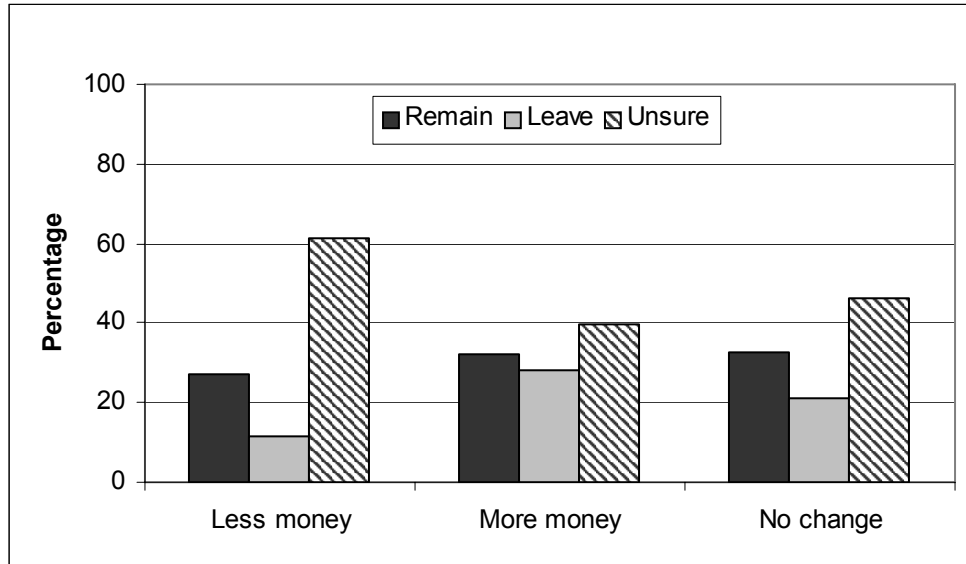
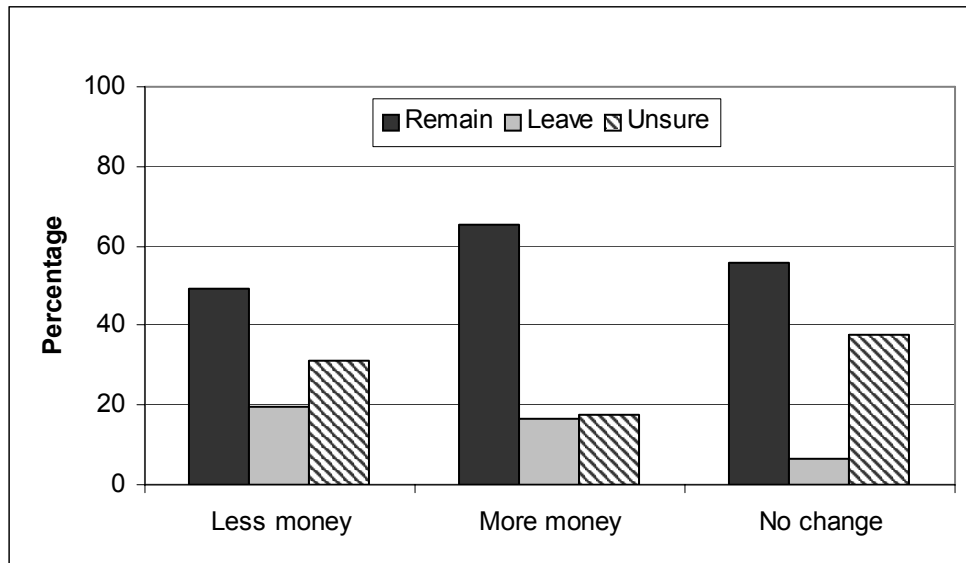


Figure 11. Retention intentions by financial impact of mobilization—previously mobilized





Reservist preferences in a Continuum of Service

Responses to the choice-based conjoint (CBC) questions in our survey allow us to estimate respondents' preferences for different levels of participation and the extent to which these preferences change with adjustments to the compensation levels. Before we present the CBC findings, however, we present tabulations of respondents' *perception* of the relative importance of the different characteristics of reserve service that they were asked to consider.

Relative importance of characteristics of reserve service

After respondents completed the CBC section of the survey, they were asked to indicate which attributes they considered to be the “most important” and “least important” when assessing the different packages. Figures 12 and 13 show the percentages of enlisted and officer respondents, respectively, who selected an attribute as the most or least important. For all respondents, retirement age was the characteristic most frequently chosen as “most important,” followed (in descending order) by the frequency of activations, participation levels, and the extent to which deployments were OCONUS.

Although retirement age was considered “most important” by respondents, the two other retirement incentives—TSP matching contributions and the number of annual affiliation retirement points—were ranked by respondents as the “least important” when assessing the CBC packages. Furthermore, for enlisted personnel, a relatively large share indicated that retirement age was the least important characteristic of reserve service.

In contrast, most respondents appear to view the bonus incentives as neither the most or least important characteristic of reserve service they were asked to consider. For both enlisted personnel and officers,

Figure 12. Relative importance of characteristics of reserve service—enlisted personnel

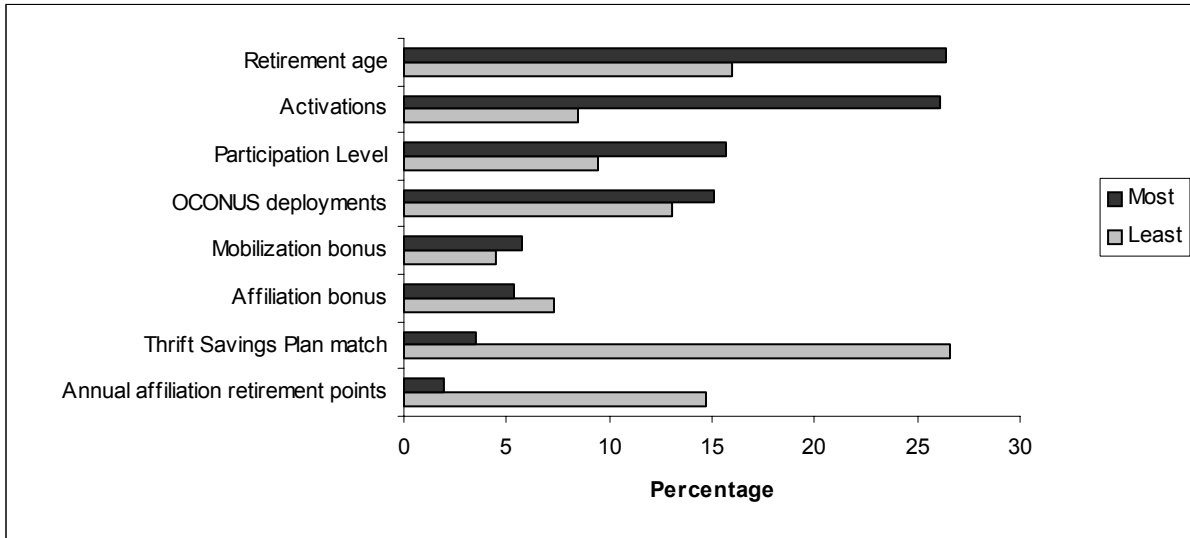
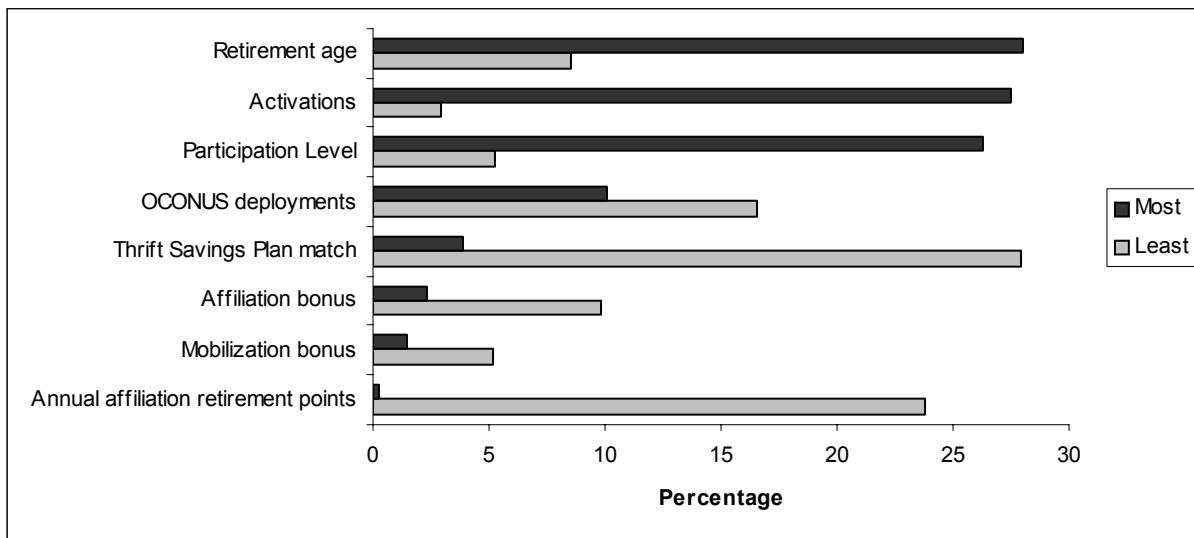


Figure 13. Relative importance of characteristics of reserve service—officers



the number that considered affiliation and mobilization bonuses to be the “most important” characteristic fell far short of the number that focused on the retirement age and the three characteristics addressing the extent of participation in the RC.

It is important to discuss what these data do and do not tell us about reservists. First, figures 12 and 13 should *not* imply that the “most important” characteristic should be improved for reservists, or that the “least important” characteristic should be discarded or eliminated. The central reason for this is that respondents are considering the benefits to them of a given characteristic, and not the cost to the Services. Even if changes to a particular characteristic (e.g., the retirement age) generate significant benefits, it is possible that the costs associated with these changes are too high. This is compounded by the fact that the different levels of some characteristics (e.g., the retirement age) represent potentially significant changes in reservist compensation, while the levels of other characteristics (e.g., TSP matching contributions) represent relatively modest changes.

Second, these data do *not necessarily* indicate which attributes *actually* influenced respondents to select one package over another when answering the CBC questions. They reflect the *perception* of respondents about the factors that caused them to prefer one type of reserve service over another.⁴⁰ In this respect, these data are useful when evaluating the CBC results. On one hand, if *actual* changes in different characteristics influenced behavior differently than respondents perceived, it is possible that respondents found the CBC section of the survey to be too complicated. On the other hand, if the characteristics viewed as most (least) important generate the largest (smallest) changes in the extent to which respondents select one package over another, it would suggest that respondents had a fairly firm grasp of the decision-making process that they were asked to simulate.

40. It is also possible that respondents selected as “most important” the change to reserve service they would most prefer and selected as “least important” the change to reserve service in which they are least interested.

Preferences for different levels of participation

In this section, we examine the extent to which respondents prefer different levels of participation in the RC. These preferences are examined *holding all other characteristics of reserve service constant*. For each characteristic describing reservist participation, we assess the extent to which respondents prefer different levels, holding all other characteristics constant at their current levels. In particular, this implies that the data presented in this section reflect preferences *without any changes in the compensation package available to reservists*. In other words, the data provide us with insights as to how reservists would prefer to participate if they were allowed to do so. In the context of a Continuum of Service, these data reveal the different levels of participation that policy-makers could expect if compensation were not changed.

Days of obligated duty

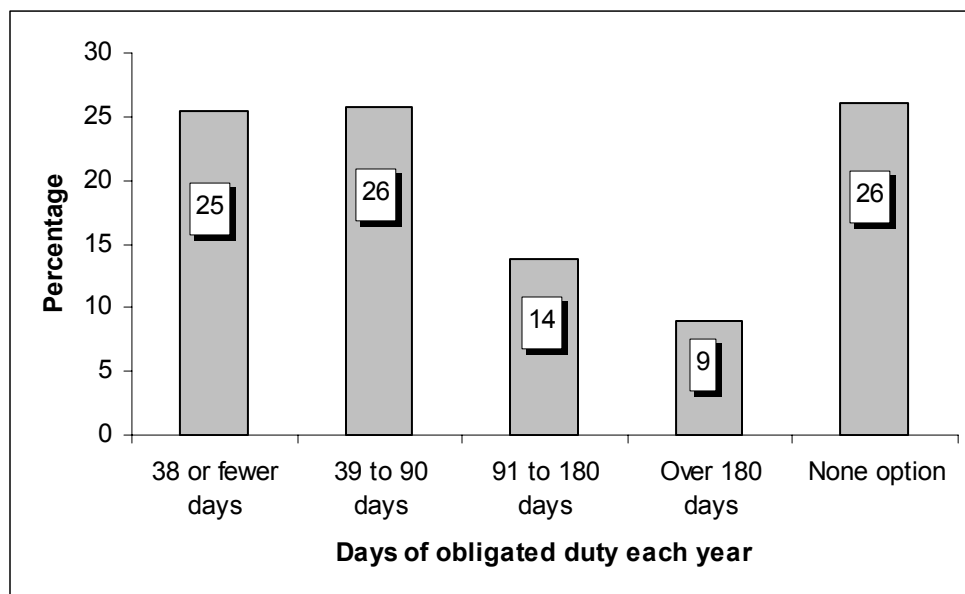
The first characteristic is an individual's *level of participation*, the number of duty days to which a reservist would be willing to voluntarily commit per year. In addition to the traditional, 38-day (or less) requirement, we also asked respondents to consider participation levels that exceeded the amount typically associated with the RC.

Figure 14 shows the variation in preferences of respondents for each level of obligated duty days per year, holding all else constant. Respondents were equally split between 38 days or fewer and 39 to 90 days, with an estimated 25 percent selecting 38 days and 26 percent selecting 39 to 90 days. While 51 percent of respondents prefer participation that requires only 90 days or fewer per year, a proportion of respondents are interested in a higher level of participation. Specifically, 9 percent would choose over 180 obligated duty days per year; an additional 14 percent would prefer between 91 and 180 duty days. What about the “none” option?

Our simulation suggests that 26 percent of all respondents plan to leave the Reserves and that none of the options presented would convince them to stay (see figure 14). In other words, our simulation predicts that about one-quarter of all respondents would leave the RC, even if given the chance to voluntarily choose their level of participa-

tion in the RC. This predicted percentage is significantly higher than the percentage of respondents who indicate that they intend to leave the Reserve when asked in the non-CBC portion of the survey.⁴¹

Figure 14. Preferences for level of participation in the Reserves



While these percentages are different, we note that the non-CBC question offers more choices to respondents than “leave” or “stay”. Specifically, people are also allowed to indicate that they are uncertain about their reenlistment intentions, or that they are retirement eligible; in contrast, the CBC portion of the survey does not provide this level of disaggregation.

Furthermore, inspection of the data suggests that there is a high degree of correlation between responses in the different sections of the survey. We can disaggregate the simulation depicted in figure 14 and estimate preferences separately for those who indicated, in the

41. See figures 7 and 8.

non-CBC portion of the survey, that they plan to reenlist, plan to separate, are uncertain, or are retirement eligible. Eighty percent of all respondents who intend to separate are predicted to leave the RC in this simulation; in contrast, less than 10 percent of respondents who intend to remain are predicted to leave. We also estimate that about 25 percent of those who are uncertain about the reenlistment decision would leave if given the opportunity to voluntarily choose their level of participation in the RC.

We caution against drawing strong inferences from these reenlistment intention data. The literature is clear that intentions do not always translate into actual behavior; people who “intend to separate” when asked in surveys may or may not do so. The high degree of correlation between responses in the different sections of our survey only speaks to the extent that respondents are being “internally consistent” when taking our survey.

Given the weak link between reenlistment intentions and actual behavior, we also present a simulation where respondents are forced to choose between the different levels of participation (i.e., they are not allowed to consider leaving the Reserve). Figure 15 presents the results of this simulation. A comparison of figures 14 and 15 reveals that, while the percentage of respondents choosing each different level rises, there is a disproportionate increase in the share choosing lower levels of participation. For example, the percentage choosing over 180 days rises slightly, from 9 to 11 percent; in contrast, the proportion choosing 38 days or less rises from 25 to 40 percent. These results are intuitive: respondents who would have chosen to leave prefer relatively few days of obligation if they are forced to choose.

Length and frequency of activation

The second characteristic of reserve service is the *length and frequency of activation*, the number of months a reservist would be willing to spend activated over a 6-year period. The Selected Reserve is managed in such a way that a reservist can expect to be activated for 12 months out of 6 years. However, we also asked respondents to assess scenarios in which they were activated more frequently and less frequently (see figure 16).

Figure 15. Preferences for level of participation in the Reserves (excluding the “none” option)

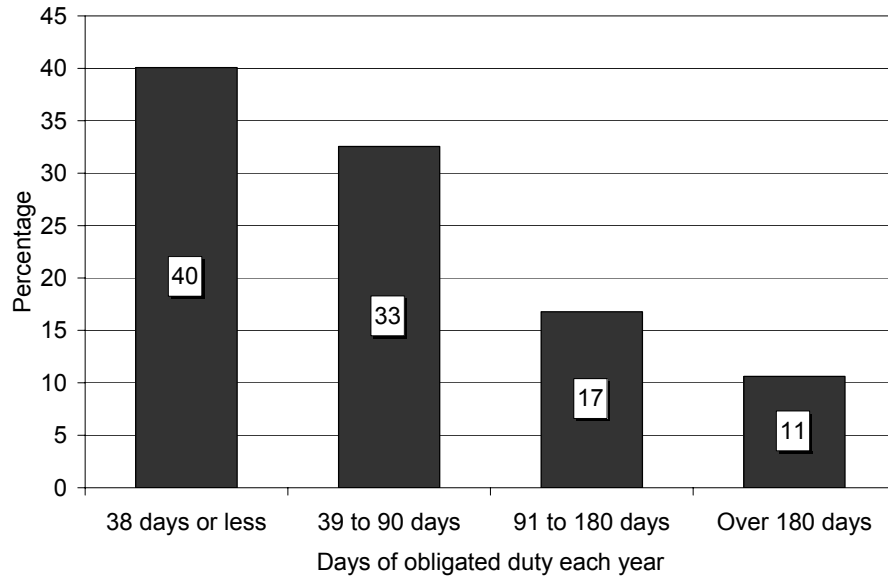


Figure 16. Preferences for length / frequency of activation

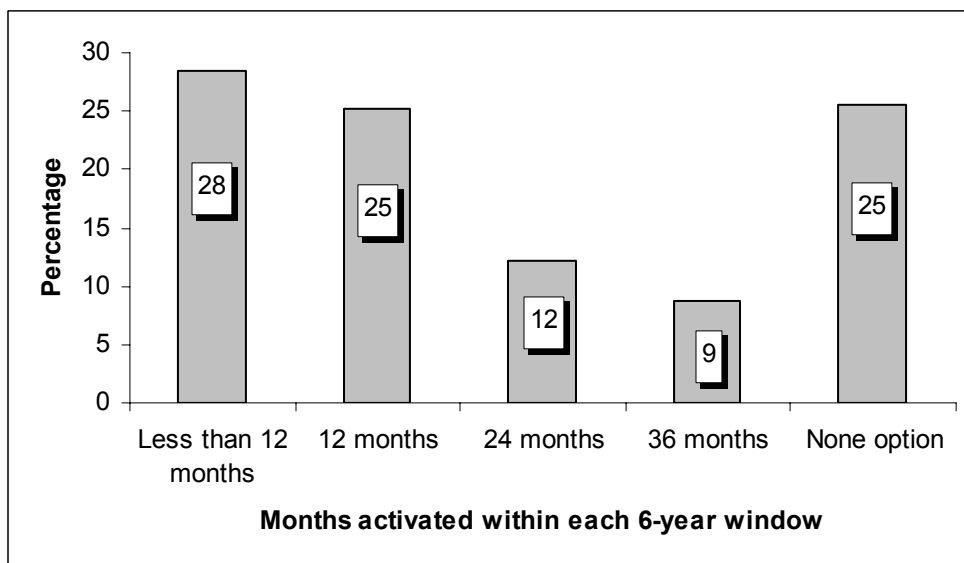


Figure 16 shows the variation in preferences of respondents for each level of activation, holding all else constant. Respondents clearly prefer lower activation levels. The percentage of respondents who select a given level of activation monotonically declines as the length/frequency of activation increases, from a high of 28 percent who prefer less than 12 months out of every 6 years to a low of 9 percent who prefer 36 months out of every 6 years. More than half of respondents prefer a level of activation at or below current levels (12 months within a 6-year period); however, 21 percent would be willing to be activated more frequently, even without any change in compensation.

Extent to which mobilizations are spent OCONUS

Finally, figure 17 shows the variation in preferences of respondents for the *extent to which mobilizations are spent OCONUS*. Qualitatively, these data are similar to the relative preferences for activations: as the percentage of a mobilization spent OCONUS increases, the percentage of personnel who prefer this level of reserve service declines. However, the difference between the “most preferred” (0 percent of mobilization is spent OCONUS) and “least preferred” (90 percent of mobilization is spent OCONUS) is relatively small. For example, only about 22 percent of enlisted personnel prefer never to be sent outside the United States. At the other extreme, 17 percent prefer that 90 percent of their mobilization is spent OCONUS. It is striking that a significant share of personnel prefer to be mobilized OCONUS, even without any changes in compensation.

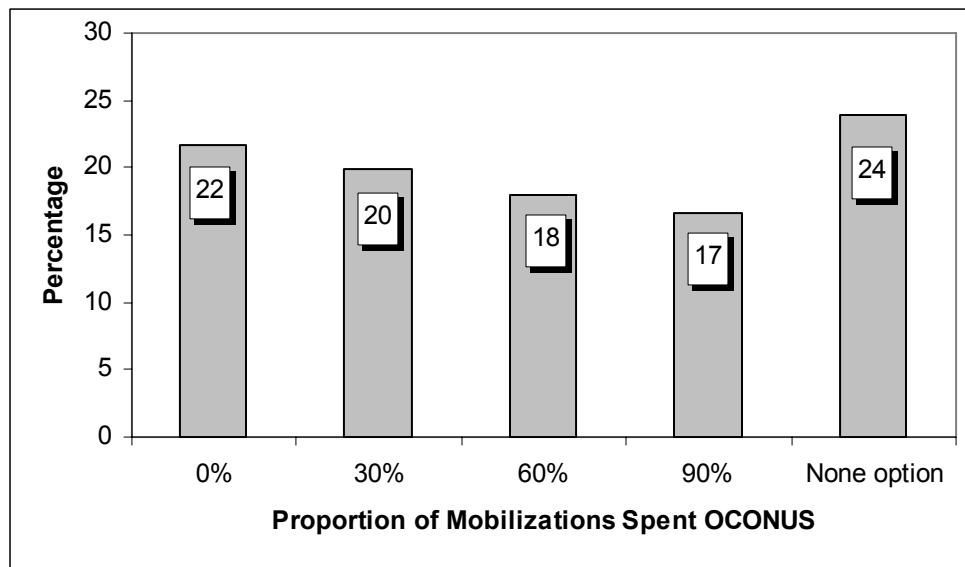
Do different types of reservists have different preferences?

Figures 14 through 17 suggest significant variation in reservist preferences for different levels of participation in the Reserve. While some reservists prefer relatively little involvement with the RC, others would prefer more significant commitments. Here, we examine the extent to which different *types* of reservists have different preferences. Specifically, we focus on differences by rank, civilian employment status, mobilization status, and financial impact of mobilization.

In each of these simulations, we are constrained by the response rates to our survey. In order to protect the anonymity of our respondents, we agreed, during the survey approval process, to limit the extent to

which we reported results of simulations for small groups.⁴² This precludes some analyses of populations in which there is likely to be an interest (e.g., self-employed reservists, differences by Reserve/Guard Component), but it is necessary to maintain the confidentiality of survey participants.

Figure 17. Preferences for extent to which mobilization is spent OCONUS



Enlisted personnel and officers

Figure 18 displays the different preferences of enlisted personnel and officers for each level of obligation, holding all else constant. A smaller percentage of officers (14 vs. 28 percent) indicate that they plan to leave the Reserves and that none of the options would convince them to stay. In contrast, officers are more likely than enlisted personnel to prefer an obligation of 90 days or less per year. However, this gap is almost completely explained by the difference in the proportion of respondents who prefer to leave the Reserves.

Figure 19 shows simulations for enlisted personnel and officers where respondents must choose between the different levels of participation (i.e., they are not allowed to consider leaving the Reserve).

42. Specifically, we do not report preferences for groups with fewer than 366 respondents.

Figure 18. Preferences for level of participation in the Reserves—enlisted personnel and officers

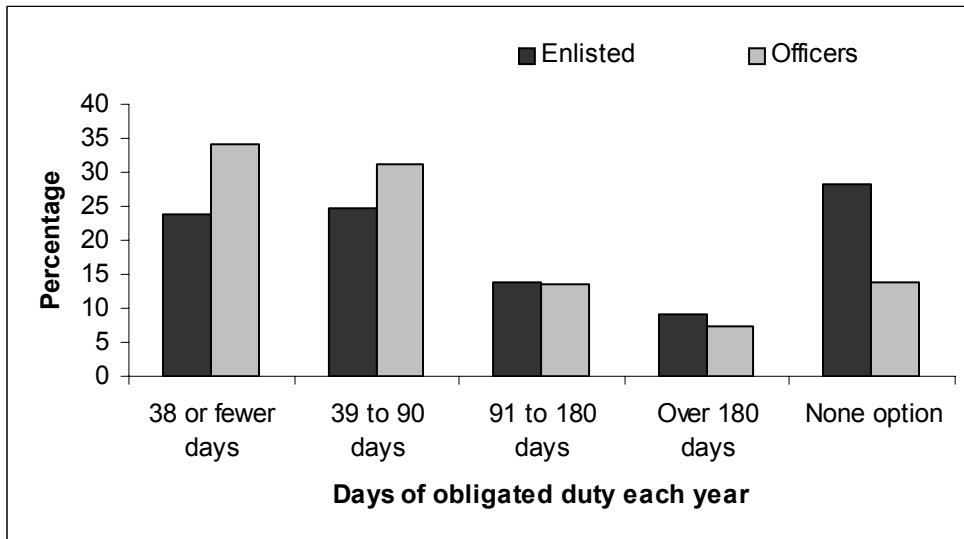
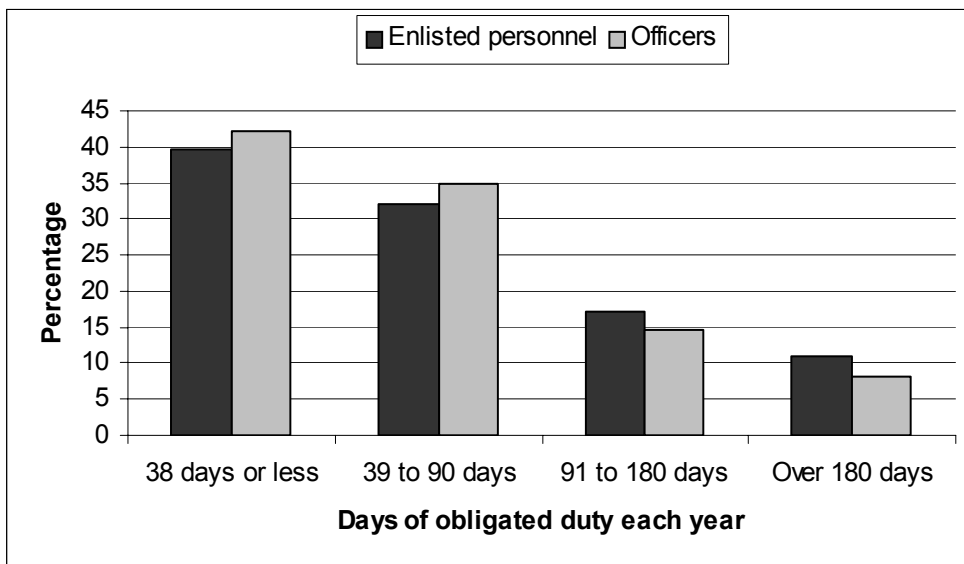


Figure 19. Preferences of level of participation in the Reserves (excluding the “none” option)



As figure 19 shows, the differences between enlisted personnel and officers, while still present, are much smaller than implied by figure 18. Again, these results are intuitive. Respondents who would have

chosen to leave prefer relatively few days of obligation if they are forced to choose. Since a higher percentage of enlisted personnel would have chosen to leave, the large gaps at low levels of obligation are narrowed when the “none” option is removed.

Civilian employment status

Figures 20 and 21 present preferences for level of participation, estimated separately for reservists employed full-time in civilian jobs and for all others.⁴³ We predict that reservists not in full-time, civilian jobs are more likely to select “none” when asked to choose different levels of participation (see figure 20). In other words, these reservists are more likely to leave the Reserves. Higher percentages of full-time civilian workers express a preference for each level of obligated duty. As figure 21 shows, however, this is due to the different percentages choosing the none option. When we restrict the choice set to exclude the ability to leave the Reserves, the differences between full-time workers and all other reservists virtually disappear. This implies that, for reservists who do not intend to separate from their units, there is very little diversity in preferences by civilian employment status.

Mobilization status

Reservists who have been mobilized in the last 3 years are less likely than those who have not (24 vs. 28 percent) to indicate that they plan to leave the Reserves. As figure 22 shows, however, there is virtually no difference in preferences for level of participation if respondents are forced to choose between the different amounts of obligated duty each year. In each category, the difference in the proportion of respondents who prefer that level of participation is less than 1 percentage point. The implication is that the mobilization experience itself does not seem to alter reservists’ preferences for service.

43. People not employed “full-time” include those in government and the private sector who report working “part time,” as well as self-employed reservists, students, and the unemployed. We do not know which self-employed reservists do so on a full- or part-time basis; sample sizes for self-employed reservists are too small to examine this group separately.

Figure 20. Preferences for level of participation in the Reserves by civilian employment status

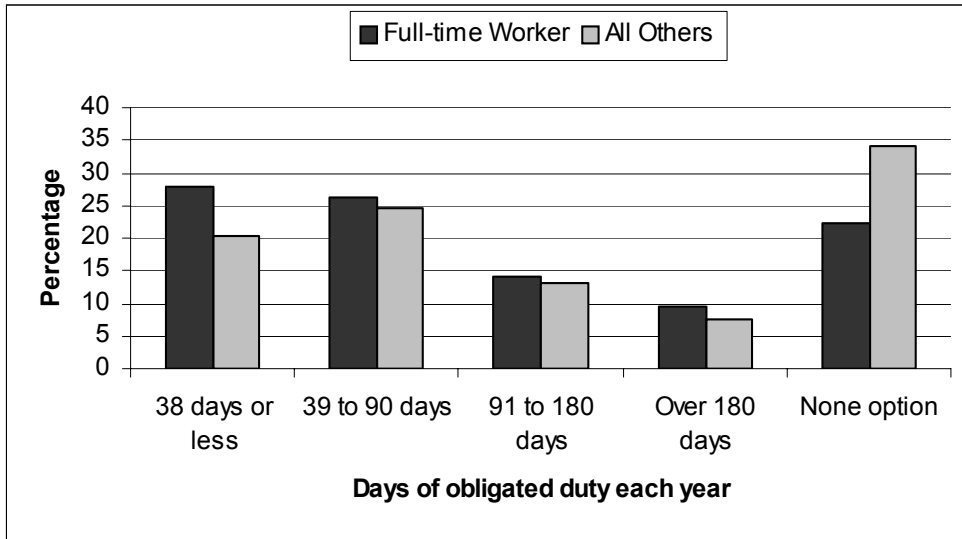


Figure 21. Preferences for level of participation in the Reserves by civilian employment status (excluding the "none" option)

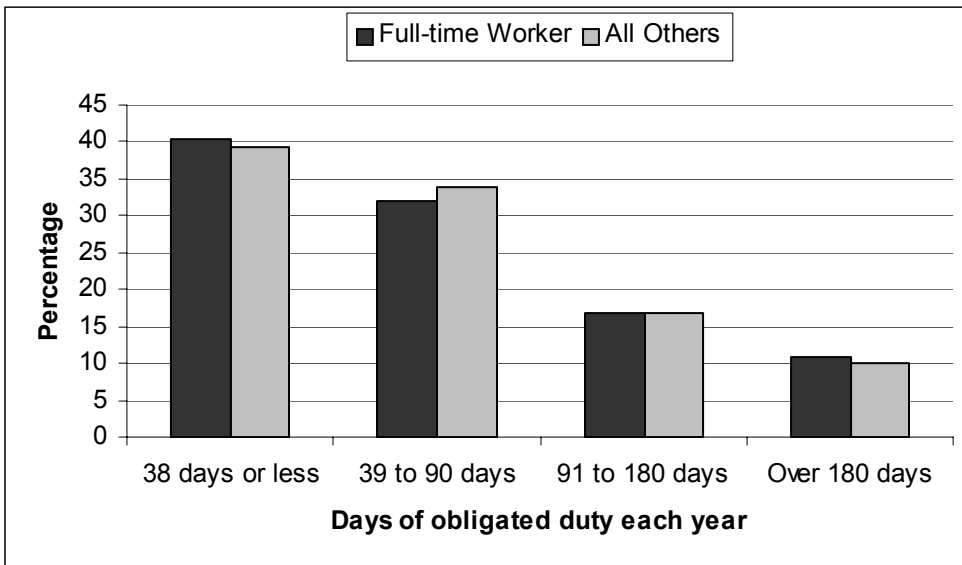
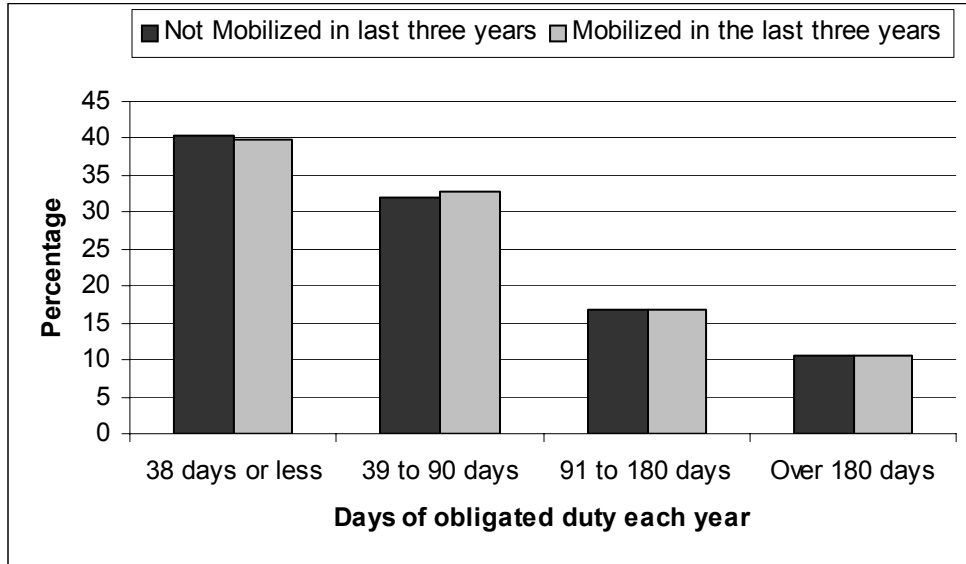


Figure 22. Preferences for level of participation in the Reserves by mobilization status (excluding the “none” option)



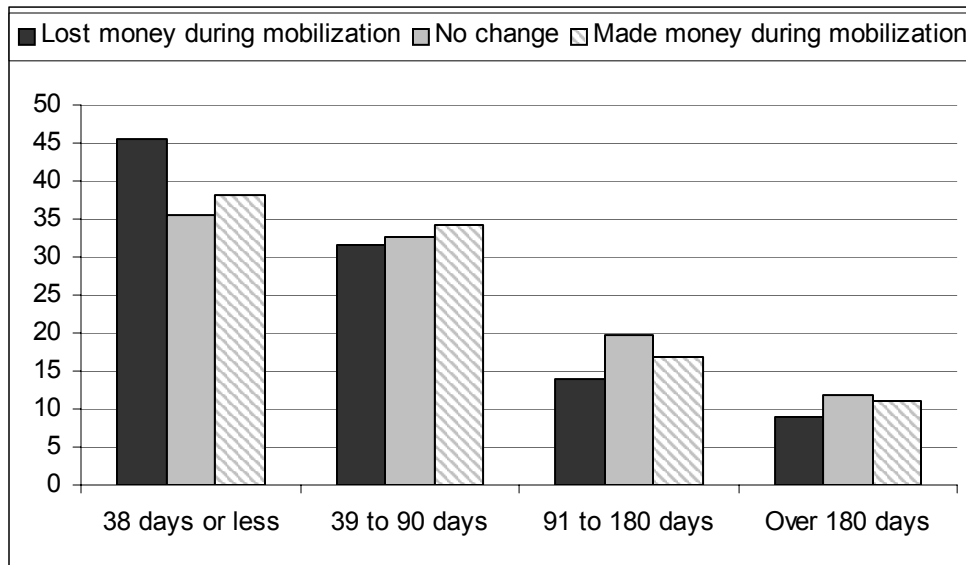
This finding is not particularly surprising since we have already demonstrated some similarities between those previously mobilized and those who have not been mobilized (see, for example, figure 9). However, when we examine preferences separately for reservists who are currently mobilized and for those who are not (not shown), the data are virtually identical to those in figure 22.

Financial impact of mobilization

Finally, figure 23 estimates preferences for reserve participation separately for those who made money, lost money, or had no change in their financial situation as a result of their most recent mobilization. As figure 23 shows, reservists whose financial situation worsened while mobilized are more likely to prefer lower levels of participation than reservists who had no change or an improvement in their financial situation. For example, slightly more than 45 percent of those who report losing money during mobilization would prefer 38 days (or less) of obligated duty each year; in contrast, less than 40 percent of all other reservists prefer this lowest level of participation. Similarly,

reservists with no change or an improvement in their financial situation are more likely to express a preference for each of the higher levels of participation.

Figure 23. Preferences for level of participation in the Reserves by financial impact of mobilization (excluding the “none” option)



Impact of compensation on preferences for reserve participation

In the previous section, we examined the extent to which respondents prefer levels of participation in the RC, *without any changes in the compensation package available to reservists*. In this section, we assess the extent to which changes in compensation affect these preferences. In other words, these data provide policy-makers with insights as to how reservists would respond to changes in compensation. From these estimates, it is then possible to estimate the change in compensation necessary to achieve a desired level of participation. For clarity, we present the impact of changes in financial compensation and changes in retirement incentives separately.

Financial compensation

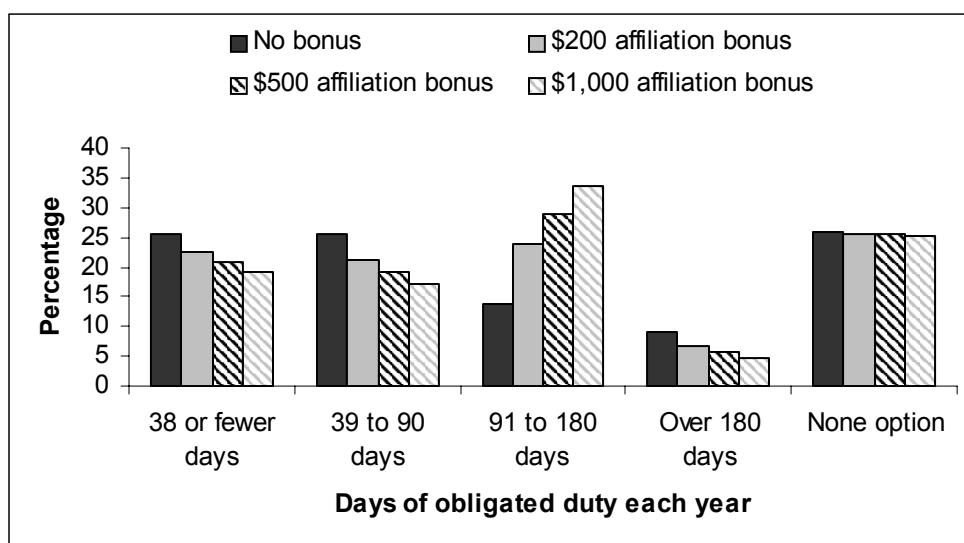
To assess the impact of changes in financial compensation on a person's *level of participation*, we perform four different simulations. In each, we predict reservist preferences for the number of duty days to which a reservist would be willing to voluntarily commit per year.⁴⁴ The only difference from simulation to simulation is the monthly affiliation bonus available to people who agree to commit to 91 to 180 duty days per year; all other characteristics of reserve service are held constant.⁴⁵ The amounts of the affiliation bonus are those presented to respondents in the survey: \$0, \$200, \$500, and \$1,000 per month.

44. Alternatively, respondents can indicate that they plan to leave the Reserves.

45. We chose this level of affiliation since it is a likely focus area of policy-makers. The qualitative conclusions of this section, however, apply to any level of participation.

Figure 24 shows the extent to which respondent preferences for each level of obligation change as the affiliation bonus is increased. For example, the first stovepipe in each group represents the share of respondents who prefer a given level of participation when no bonus is offered; these percentages are identical to the data presented in figure 14. Similarly, the last stovepipe in each group represents the share of respondents who prefer a given level of participation when a \$1,000 monthly bonus is given to those who serve 91 to 180 duty days per year.

Figure 24. Preferences for level of participation in the Reserves—monthly affiliation for 91 to 180 obligated duty days



As figure 24 shows, higher affiliation bonuses increase the proportion of reservists willing to commit to the level of participation incentivized by the bonus. For example, 14 percent of reservists prefer between 91 and 180 duty days per year; with a \$200 monthly bonus, however, 24 percent of reservists would be willing to commit to this level of participation. This percentage increases again with a \$500 monthly bonus (29 percent of reservists) and yet again (34 percent of reservists) with a \$1,000 monthly bonus.

Furthermore, most of this increase occurs because of changing preferences for different levels of participation, *not* because of significant changes in the share of respondents who indicate that they plan to leave the Reserves. For example, 26.0 percent indicate that they would leave the Reserves with a \$0 bonus; with a \$1,000 monthly bonus, this drops only to 25.3 percent. In contrast, the percentage that prefers 39 to 90 duty days per year drops from 26 percent (\$0 bonus) to 17 percent (\$1,000 bonus). The percentage that prefers each of the different levels of participation declines as a result of the increasing affiliation bonus for 91 to 180 duty days per year.

This finding is notable for two reasons. First, it does *not* appear as though financial incentives supporting a Continuum of Service would lead to large changes in retention.⁴⁶ Second, while targeting bonuses can increase voluntary participation in certain areas, policy-makers need to be aware that these incentives will draw reservists away from different levels of participation. For example, policy-makers may want to increase the share of reservists who commit to 91 to 180 days per year *without* reducing the share willing to serve over 180 days per year.

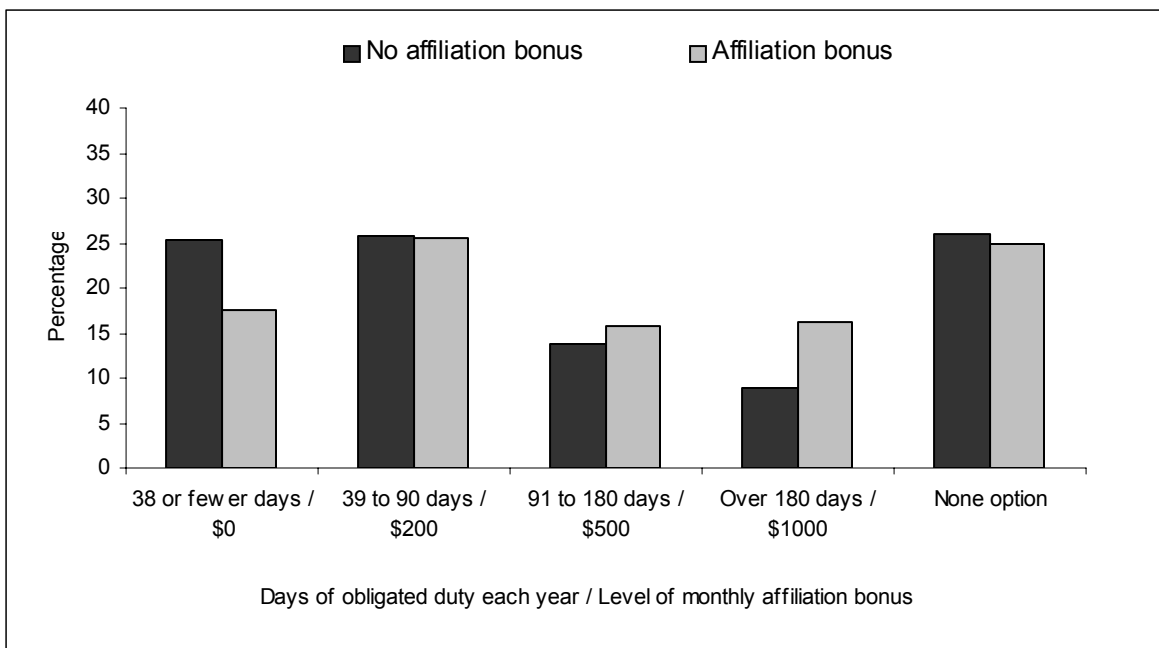
In principle, then, policy-makers can target different bonuses to different levels of participation. If correctly targeted, the aggregate effect of these bonuses will selectively increase desired participation levels, while decreasing the share of reservists who volunteer for other levels. Figure 25 presents such a notional simulation, where different affiliation bonuses are tied to different levels of participation. In this simulation, people who commit to 38 or fewer days per year are not offered any additional compensation. However, those who commit to 39 to 90 days receive a \$200 monthly affiliation bonus; those who serve 91 to 180 days receive \$500 per month, while those who commit to more than 180 days receive \$1,000.⁴⁷

46. Again, however, we emphasize that these survey results allow us only to assess retention *intentions*, which will not necessarily correspond to actual behavior.

47. For simplicity, we chose affiliation bonus levels that corresponded to the levels presented in the survey. In practice, however, our estimates allow us to predict the effect on participation of any level bonus.

With this menu of affiliation bonuses, policy-makers would be able to significantly increase volunteerism for more than 90 duty days per year. Furthermore, this increase is mostly achieved by significantly reducing the percentage that is willing to commit to 38 days or less per year. In contrast, the share that volunteers for 39 to 90 days per year is virtually unchanged.

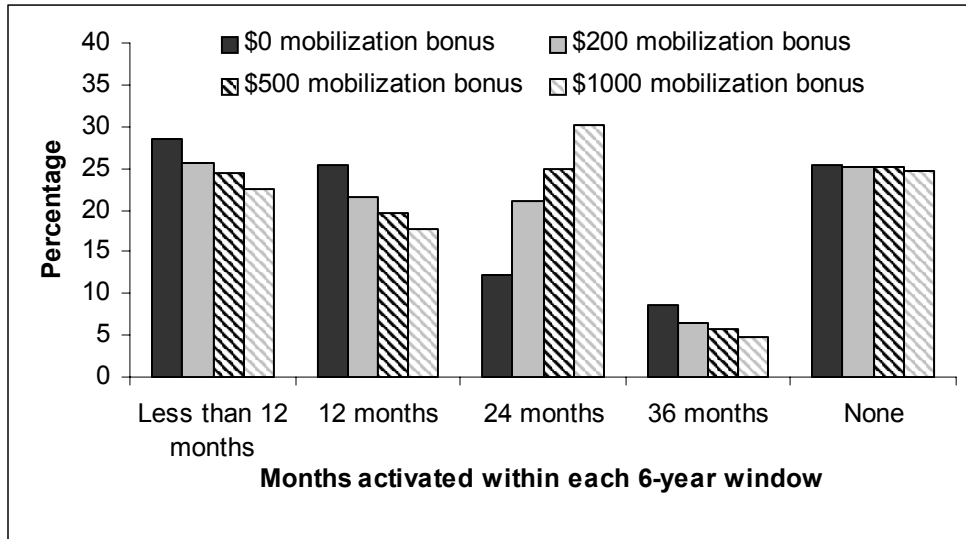
Figure 25. Preferences for level of participation in the Reserves—monthly affiliation bonuses for different levels



The effects of financial compensation on respondents' willingness to accept activations and OCONUS mobilizations are qualitatively similar to the effect on willingness to accept different levels of participation. Figures 26 and 27 demonstrate the responsiveness of reservists' preferences for activations and mobilizations, respectively, to different levels of a monthly mobilization bonus. For activations (figure 26), the financial incentive is tied to a willingness to accept 24 months of activation in a 6-year time frame; for mobilizations (figure 27), the mobilization bonus is targeted to acceptance of 90 percent of a mobilization spent OCONUS. In both cases, the effect of the mobilization bonus is to increase reservists' willingness to volunteer for the level of commitment incentivized by the bonus. Furthermore, this increase is

achieved through a decrease in volunteerism for other levels of commitment, rather than a significant decrease in the percentage of respondents who plan to leave the Reserves.

Figure 26. Preferences for length/frequency of activation—monthly mobilization bonus for 24 months within a 6-year time period



Do different types of reservists respond differently to changes in financial compensation?

For the most part, there is little difference in the extent to which different types of reservists respond to changes in financial compensation. This is true when we focus on differences by rank, civilian employment status, or mobilization status, regardless of whether we examine preferences for the level of participation in the Reserves, length/frequency of activations, or the extent to which mobilizations are spent OCONUS. The one exception appears to be differences in the responsiveness to mobilization bonuses of reservists who either made or lost money during their most recent mobilization. Table 6 displays an example of these differences; here, we show the changing preferences of reservists as different mobilization bonuses are targeted to acceptance of 90 percent of a mobilization spent outside the United States.⁴⁸

Figure 27. Preferences for extent to which mobilization is spent OCONUS—monthly mobilization for 90 percent of mobilization spent OCONUS

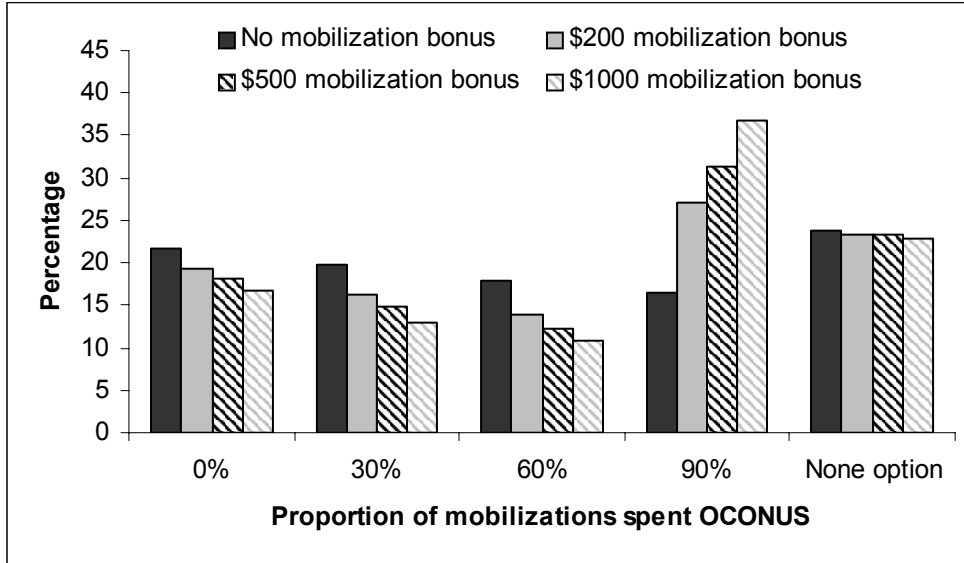


Table 6. Preferences for 90 percent of mobilization spent OCONUS by financial impact of most recent mobilization

Size of mobilization bonus	Lost money during most recent mobilization (preference share)	Made money during most recent mobilization (preference share)
\$0	21.4	19.8
\$200	32.9	30.6
\$500	40.1	34.5
\$1,000	46.6	39.4

48. This simulation is identical to that presented in figure 27, except that it is estimated separately for those who made and lost money during their most recent mobilization.

As table 6 shows, in the absence of a mobilization bonus, those who lost money during their most recent mobilization are only slightly more likely (21 vs. 20 percent) to prefer to spend the bulk of their mobilization OCONUS. As the size of the monthly mobilization bonus increases, however, those who had lost money during their most recent mobilization are significantly more responsive to changes in this financial incentive. At the extreme, when a \$1,000 monthly mobilization bonus is offered, these people are now significantly more likely (47 vs. 39 percent) to prefer to spend the bulk of their mobilization OCONUS.

Retirement incentives

The responsiveness of reservists to changes in retirement incentives is qualitatively similar to the effect of monthly affiliation/mobilization bonuses: targeting incentives results in an increase in the share of reservists willing to volunteer for the level of service to which the retirement incentive is linked. Figures 28 and 29 present two examples of this result. Figure 28 shows the extent to which respondent preferences for each level of obligation change as the Services match TSP contributions; figure 29 shows the extent to which these preferences change as additional retirement points are awarded. In both cases, these retirement incentives are available only to those who agree to commit to 91 to 180 duty days per year.⁴⁹

Both for TSP matching and for receipt of additional retirement points, the effect of the retirement incentive is to increase reservists' willingness to volunteer for the level of commitment incentivized by the bonus. Furthermore, this increase is achieved through a decrease in volunteerism for other levels of commitment, rather than a significant decrease in the percentage of respondents who plan to leave the Reserves.

49. We reach the same qualitative conclusions, regardless of the level of participation at which retirement incentives are targeted, and regardless of whether we focus on level of participation, length/frequency of activations, or the extent to which mobilizations are spent OCONUS.

Figure 28. Preferences for level of participation in the Reserves—TSP matching contributions for 91 to 180 obligated duty days

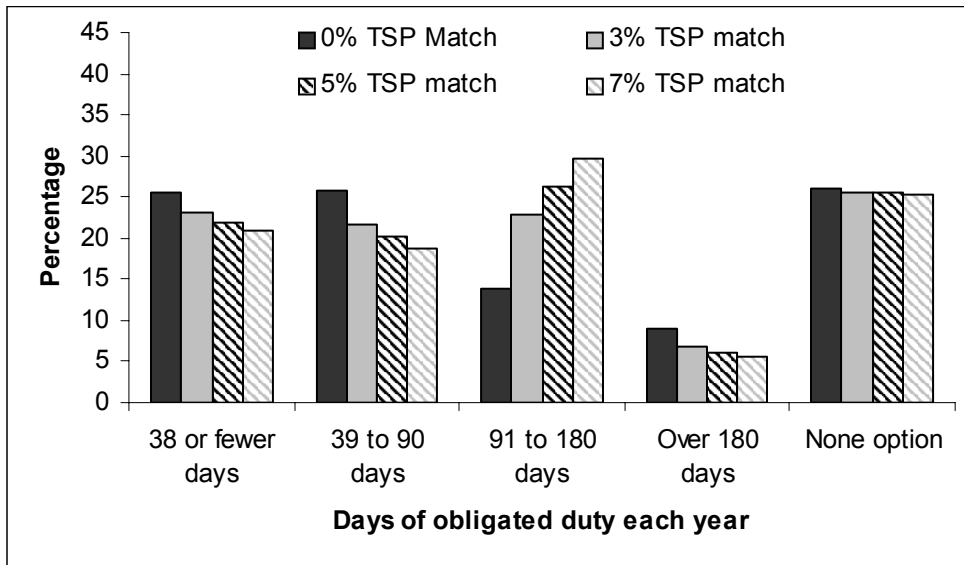
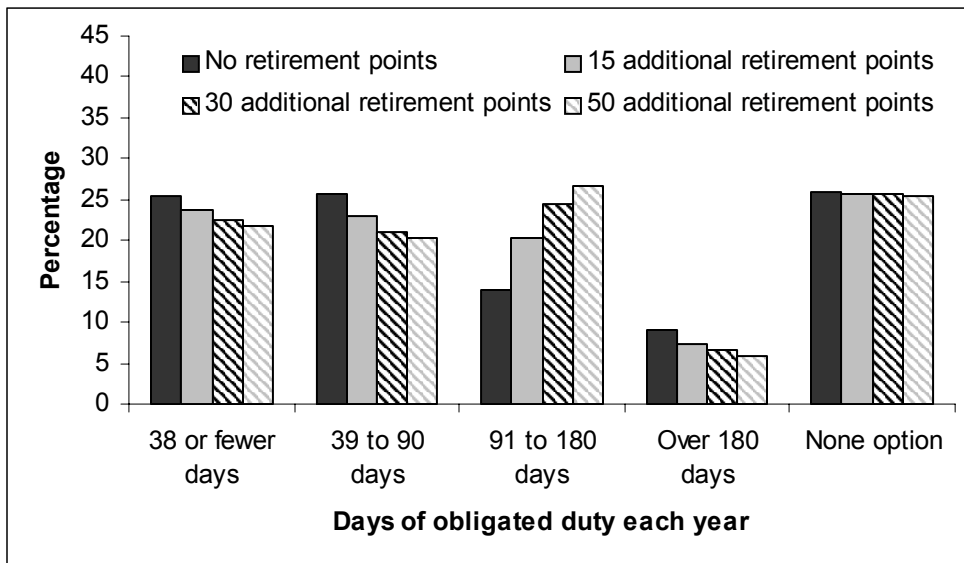


Figure 29. Preferences for level of participation in the Reserves—additional retirement points for 91 to 180 obligated duty days



While targeted retirement incentives can, in principle, achieve the same behavioral response as targeted financial compensation, it is useful to examine the effect of across-the-board changes in compensation. To illustrate this, we examine the impact of changes in the retirement age on reservists' preferences for different levels of participation in the Reserves. We focus on changing the retirement age for two reasons. First, as figures 12 and 13 suggest, the retirement age was considered the "most important" characteristic of reserve service to respondents while taking the survey. Second, it is unlikely that the retirement age would be selectively lowered for people who agree to commit to different levels of participation.⁵⁰

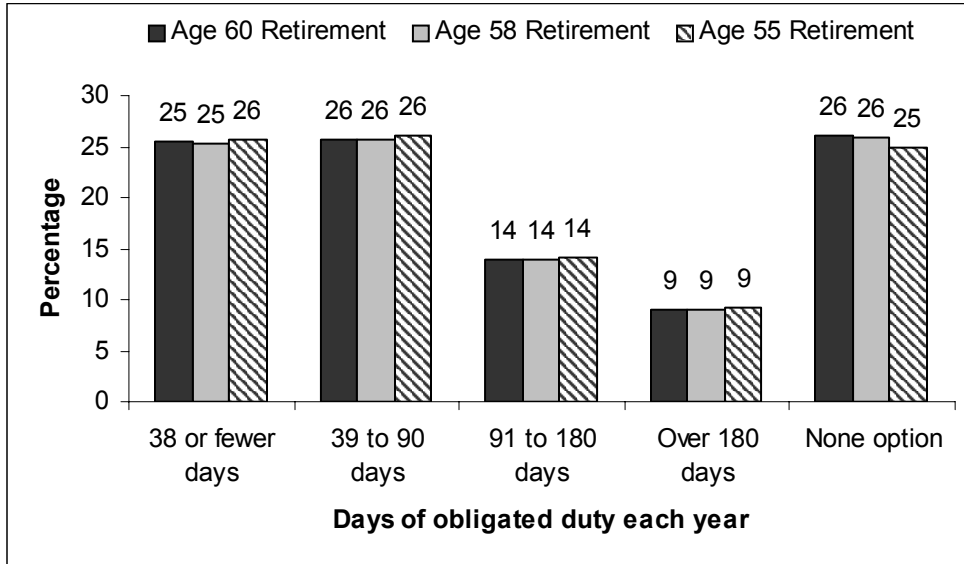
Figure 30 shows the extent to which respondent preferences for each level of obligation change as the retirement age is lowered. In figure 30, we present three separate simulations, with different assumptions about the age at which reservists are allowed to receive retirement benefits: age 60 (the status quo), age 58, and age 55. As these data clearly show, the change in preferences is negligible: the proportion of respondents who prefer different levels of affiliation is virtually unchanged as the retirement age changes. Furthermore, lowering the retirement age from 60 to 55 results in a reduction of respondents who intend to leave the Reserves, although this reduction is only about 1 percentage point.⁵¹

Despite respondents' perceptions that the retirement age was an "important" factor in their decision-making process, the data in figure 30 should not come as a surprise. Across-the-board changes in the retirement age do not support voluntary participation in a Continuum of Service because they provide no incentives to volunteer for different levels of reserve participation. The only effect on participation is through a decrease in the proportion of reservists who plan to leave the RC; however, this decrease is very slight. With no incentive to alter one's preferences for different levels of participation, there is no reason for people to change their preferences.

50. However, it is possible that reservists with different terminal lengths of service in the Reserves might face different ages at which they are able to receive retirement benefits. This simulation, however, is beyond the scope of the data collected from our survey.

51. This result is qualitatively similar to the conclusions of [24].

Figure 30. Preferences for level of participation in the Reserves—across-the-board changes in the retirement age



Do different types of reservists respond differently to changes in retirement incentives?

For the most part, there is little difference in the extent to which different types of reservists respond to changes in retirement incentives. This is true when we focus on differences by rank, civilian employment status, mobilization status or the financial impact of mobilization. The one exception appears to be differences in the responsiveness by age of the reservist. Table 7 displays an example of these differences; here, we show the changing preferences of reservists as different degrees of TSP matching are targeted to 91 to 180 duty days per year.⁵² For simplicity, we present the preferences of reservists in three separate age categories: age 30 or below, age 41 to 45, and age 46 to 50.

52. This simulation is identical to that presented in figure 28, except that it is estimated separately for the age categories listed in table 7.

Table 7. Preferences for 91 to 180 duty days by age of reservist

Size of TSP match	Age 30 or below (preference share)	Age 41 to 45 (preference share)	Age 46 to 50 (preference share)
0%	11.2	18.9	21.6
3%	19.4	30.6	31.5
5%	23.1	33.8	36.7
7%	25.2	38.3	41.1

As table 7 shows, older reservists are significantly more responsive to changes in the extent to which they are provided with matching contributions to their Thrift Savings Plans. For example, if reservists receive a 3-percent match in return for the targeted level of obligation, the share of reservists age 30 or below who are willing to commit to this level of obligation rises by about 8 percentage points. For reservists age 41 to 45, however, a 3-percent match raises participation by almost 12 percentage points.

At the extreme, a 7-percent match would increase participation of reservists age 30 or younger by 14 percentage points. For reservists age 41 to 45, however, a 7-percent match raises participation by about 19 percentage points. For reservists age 46 to 50, the increase in participation is also large (19.5 percentage points). This result is consistent with both economic theory and our conclusions from our focus group discussions.



Cost-benefit analysis of potential changes to compensation

The data presented in the previous section consistently show that targeted incentives have the potential to support voluntary participation in a Continuum of Service. Survey respondents demonstrated a willingness to accept different levels of affiliation, activation, and mobilization if offered compensation in return. This qualitative result holds for changes in monetary compensation, such as monthly affiliation or mobilization bonuses, as well as for changes in retirement incentives, such as TSP matching contributions or additional retirement points.

Despite these *qualitative* similarities, our survey results reveal *quantitative* differences in the responsiveness of reservists to different incentives. Furthermore, the data suggest that policy-makers can achieve a desired level of voluntary participation in *multiple ways*, through a variety of different changes to the compensation package. Each change to the compensation system, however, has a different cost associated with that change.

Therefore, in this section, we assess the relative costs to the government of changing the compensation system in order to achieve voluntary participation in a Continuum of Service. This cost-benefit analysis combines the pay and retirement expenditure of implementing different types of incentives (“the costs”) with our survey estimates of reservists’ responsiveness to different incentives (“the benefits”). We first estimate the relative change in participation from a 1-percent increase in compensation expenditures corresponding to different incentives. We then estimate the manning costs associated with achieving a benchmark level of participation. In addition to presenting the incentive costs necessary to increase volunteerism, we briefly discuss the basic and retirement costs of higher levels of participation.

We showed earlier that the share of reservists selecting a participation level increases with associated increases in compensation incentives (see figure 24). We find that all targeted forms of incentives have that effect; however, each incentive tool has a different cost. To incorporate these costs and provide a comparison across incentives by participation level, we present the percentage change in the share selecting a specific participation level given a 1-percent change in government expenditures on compensation.

In this section, we focus on how changes in compensation expenditures through different incentives influence the share of reservists volunteering for participation at 90 to 180 duty days per year or 24 months activated every 6 years.⁵³ To calculate our estimates, we first determined the present discounted value of basic pay and retirement expenditures associated with a certain level of participation.⁵⁴ We then determined the amount of each incentive tool that would be equivalent to a 1-percent increase in estimated basic pay and retirement expenditures. We looked at targeted incentives—affiliation and

53. For the participation level of 90 to 180 duty days per year, we assumed that those duty days included a 12-month activation every 6 years. In the case of 24 months activated every 6 years, we assume that nonactivated years would include an average of 38 duty days per year. We did not look at increasing the share selecting to participate at a higher level of mobilizations spent OCONUS since policy-makers have no current rule of thumb concerning the extent to which reservists are sent OCONUS.

54. We estimate the present discounted value of expected basic pay and retirement expenditures for a representative Servicemember until death at age 79. We assume that the Services are interested in increasing the share selecting each participation level over the next 11 years. For both our representative enlisted members and officers, we assumed that they had 11 years left until retirement eligibility at 20 years. We assumed that retirement benefits were received at age 60 except when examining across-the-board decreases in retirement. We estimated the compensation expenditures assuming that the representative enlisted member (officer) was currently E-5 (O-3) and would be E-7 (O-5) at 20 years of service. We assumed a government investment return of 6.25 percent, and an annual basic pay increase, longevity credit, and retirement cost-of-living adjustment rate of 3 percent (see <http://www.dod.mil/actuary/> for the latest valuations).

mobilization bonuses and retirement points—as well as an across-the-board change in the retirement age.⁵⁵ Any change in retirement age would apply to reservists at all participation levels, while any change in one of the targeted forms of compensation would only be paid to someone volunteering for 90 to 180 duty days per year or 24 months activated every 6 years. Based on our survey results, we then estimate how a 1-percent increase in compensation expenditures changes the share selecting a participation level. We present a range of estimates for participation at 90 to 180 duty days per year since there are different manning costs associated with 90 versus 180 duty days per year.

Tables 8 and 9 show the effect on selection of different levels of participation for our enlisted and officer samples, respectively, given a 1-percent increase in compensation expenditures. For our enlisted sample, we estimate that 12 percent would volunteer to activate 24 months every 6 years without any incentive. On one hand, a 1-percent increase in the government’s expected expenditures on compensation in the form of an affiliation bonus would amount to \$20 a month and, if paid for activating 24 months of every 6 years, would increase the share selecting that participation level by 1 percentage point—an 8-percent increase. On the other hand, we estimate that a 1-percent increase in expected compensation expenditures from mobilization bonuses targeted to the level of 24 months activated every 6 years would increase the share selecting that participation level by 21 percent.

We find that targeted incentives are more cost-effective than across-the-board incentives. While decreasing the retirement age increases manning costs, it has little or no effect on the selection of either participation level because it is an across-the-board change that is not targeted to any level of participation. Consequently, even significant—that is, expensive—changes resulting from lowering the retirement age would not significantly influence participation level selection.

55. We did not estimate the effect of a TSP match because we have no information on how many people currently participate or how much is contributed; therefore, we’re unable to estimate the costs of this incentive.

Table 8. Increase in the share selecting different levels of participation given a 1-percent increase in expenditures on compensation: Enlisted example

1-percent increase in compensation expenditures from	Percentage change in share selecting these participation levels	
	24 months activated every 6 years	90 to 180 duty days per year
Affiliation bonus	8%	7% to 10%
Mobilization bonus	21%	36% to 51%
Retirement points	45%	38% to 51%
Retirement age	0.1%	0.1% to 0.2%

Table 9. Increase in the share selecting different levels of participation given a 1-percent increase in expenditures on compensation: Officer example

1-percent increase in compensation expenditures from	Percentage change in share selecting these participation levels	
	24 months activated every 6 years	90 to 180 duty days per year
Affiliation bonus	16%	14% to 21%
Mobilization bonus	45%	62% to 72%
Retirement points	46%	37% to 50%
Retirement age	0%	0%

For enlisted members and officers, we find that retirement points and mobilization bonuses are more cost-effective than an affiliation bonus. For higher levels of activations, and thus increased mobilization bonus expenditures, targeted retirement points are more cost-effective than a mobilization bonus. To increase the share selecting more duty days per year, we estimate that mobilization bonuses are the most cost-effective of the four incentives analyzed.

Our finding that a deferred compensation—retirement points—is more cost-effective than an immediate compensation—affiliation bonus—is unexpected. While we don't have a definite explanation for this finding, there is the potential that retirement points were overvalued by survey respondents and that the actual implementation of retirement points would not be as cost-effective as our findings suggest. Survey respondents may have overvalued retirement points

since they are more difficult to understand than bonuses. For example, retirement points are only one contributing variable in the equation used to calculate retirement benefits. Further, retirement points would influence compensation in the future, whereas bonuses are immediate forms of compensation; however, it is unclear to what degree survey respondents were taking that into consideration. If survey respondents did not discount the perceived benefit of retirement points on the survey questions in the same manner they actually would if faced with that incentive, then our survey results would overstate the impact of reenlistment points relative to bonuses. Finally, survey respondents may have stated that they would respond to retirement points more than they actually would since, as revealed in our focus groups, there is a current interest in policies that increase retirement benefits. Thus, the actual benefit of additional retirement points to the Servicemember and effect on the share selecting higher participation levels may be less than the perceived benefit and effect implied by our survey findings.

Our finding that mobilization bonuses are more cost-effective than affiliation bonuses is due to when the bonus is paid and how the bonuses are perceived by our survey respondents. Our survey data show that targeted mobilization bonuses influence the share selecting higher duty days, as well as days activated. By definition, the mobilization bonus would only be paid for time spent mobilized. Thus, as the number of duty days consisting of activated days increases, the cost differential between affiliation and mobilization bonuses decreases. Mobilization bonuses may be preferred relative to affiliation bonuses since they are potentially less risky. An affiliation bonus is paid monthly, regardless of what amount is worked in that month whereas a mobilization bonus is paid during the period mobilized. Under an affiliation bonus, more time spent working decreases the amount of incentive paid per day of work, while a mobilization bonus is paid the same amount over every day mobilized. For example, if a reserve member is uncertain about how much he or she will be expected to work under an expected 90 to 180 duty days of participation per year, a more finely targeted bonus may be perceived as a more certain level of compensation per day of reserve work. In addition, mobilization bonuses are additional military compensation during the periods a Servicemember typically expects to have lower nonmilitary earnings

(i.e., during a mobilization). Thus, if credit or cash-flow is a concern, then a bonus that is directly tied to mobilized days may provide more financial certainty than a bonus that is paid over all months affiliated.

Manning costs from higher participation

Any increase in the use of reservists—whether in the form of drill, training or activated days—will, at a minimum, increase basic pay expenditures and expected retirement pay. Table 10 shows the expected basic pay and retirement expenditures for reserve members at different participation levels. These estimates are based on a representative reserve member with 11 years of service left until retirement eligibility, who receives retirement benefits at age 60.⁵⁶ Our back-of-the-envelope estimate for an enlisted member serving 180 duty days per year with an expected 12-month activation every 6 years is \$269,106. These costs ignore any increase in compensation expenditures from incentives used to increase the share of reserve members volunteering at these levels.

Table 10. Expected basic pay and retirement expenditures for a representative reserve member at different levels of participation

Duty days per year	Months activated	Enlisted	Officer
	every 6 years		
38 days	12 months	\$143,444	\$337,560
90 days	12 months	\$186,166	\$428,935
180 days	12 months	\$269,106	\$635,955
38 days	24 months	\$197,486	\$458,401

Basic pay and retirement expenditures are dependent on days of drill, training, and activation. Table 10 illustrates how increased participation will increase these manning costs, even without an incentive. Consider a representative enlisted member participating at 38

56. We estimated basic pay and retirement expenditures assuming that our representative enlisted member (officer) was currently E-5 (O-3) and would be E-7 (O-5) at 20 years of service. We assumed a government investment return of 6.25 percent, and an annual basic pay increase, longevity credit, and retirement cost-of-living adjustment rate of 3 percent (see <http://www.dod.mil/actuary/> for the latest valuations).

duty days and 12 activated months every 6 years. If she is one of the reservists who would be attracted by an incentive to participate at 38 duty days and 24 activated months every 6 years, then we estimate the corresponding increase in compensation expenditures to be \$54,042.

Incentive costs to achieve a benchmark level of participation

While our results show that some reservists would volunteer to participate at 90 to 180 duty days per year and/or for 24 months activated every 6 years, the share of reservists at those participation levels may not meet the Service's needs. In addition to basic pay and retirement expenditures from a higher level of participation, manning costs would increase with the use of any incentive. To illustrate the extent to which manning costs would increase with an increased share selecting certain participation levels, we calculate the additional incentive costs to achieve a benchmark of 24 percent of reservists selecting a certain level of participation.⁵⁷ This benchmark essentially doubles the estimated share selecting these participation levels. This benchmark is arbitrary and actual incentive costs would be dependent on the benchmark share that fits the Service's needs.

Based on our survey results, we estimate that, without any incentive, 14 percent of our enlisted sample would volunteer for 90 to 180 duty day per year and 12 percent would volunteer for 24 months activated every 6 years. The estimates from our officer sample are 13 and 11.5 percent, respectively. Tables 11 and 12 show the additional incentive costs necessary to increase the share of reservists to a 24-percent share. We estimate that a \$187 monthly affiliation bonus would incentivize 24 percent of the enlisted reserve force to select 90 to 180 duty days per year. Over 11 years, the expected cost of that affiliation bonus per representative enlisted member is \$17,507 dollars. This is in comparison with the expected mobilization bonus cost of \$3,711.⁵⁸

57. We don't include estimates for retirement age since no reasonable across-the-board decrease in retirement age could increase the share selecting these participation levels to 24 percent.

Table 11. Increase in expected compensation expenditures needed to achieve a 24-percent share at each participation level:
Enlisted example

	24 months activated every 6 years	90 to 180 duty days per year
Affiliation bonus	\$28,398	\$17,507
Mobilization bonus	\$14,196	\$3,711
Retirement points	\$7,326	\$4,208

Table 12. Increase in expected compensation expenditures needed to achieve a 24-percent share at each participation level:
Officer example

	24 months activated every 6 years	90 to 180 duty days per year
Affiliation bonus	\$45,667	\$35,341
Mobilization bonus	\$24,574	\$8,491
Retirement points	\$28,566	\$17,756

Again we find that mobilization bonuses and retirement points are more cost-effective than an affiliation bonus. For our enlisted sample, retirement points are more cost-effective than a mobilization bonus in encouraging a larger share to volunteer to activation at higher levels. Otherwise, a mobilization bonus is the least expensive incentive analyzed.

The costs from increasing participation and maintaining high levels of participation increase basic and retirement pay costs as well as incentive costs if incentives are necessary to induce volunteers to participate. Thus the total manning costs, not just the costs of incentive, associated with different types of participation may factor into the Service's feasible participation goals under a Continuum of Service.

58. Under the status quo of 38 duty days and 12 months activated every 6 years, the share selecting each participation differs. Consequently, comparisons between compensation tools that are within participation types are appropriate, but comparisons across participation type are not.

Conclusions

A central principle of a Continuum of Service is the recognition that reservists differ in their willingness and ability to accept activation and deployment. Furthermore, policy makers' experience with the All-Volunteer Force has demonstrated that individuals respond to incentives. Consequently, changes to reservist compensation can support voluntary participation in a Continuum of Service; correctly targeted incentives can encourage reservists to voluntarily choose levels of affiliation that meet the demand for their skills.

Our analysis of choice-based conjoint survey data generally confirms these principles. First, the data suggest that reservists have different preferences for participation, *even without changes in compensation*. While a number of reservists prefer the traditional, 38 duty days per year commitment, several would be willing to participate more frequently. Similarly, there is significant variation in reservists' preferences for long and frequent activations and for overseas mobilizations and deployments. An important implication of this finding is that policy makers can increase voluntary participation in the Reserves by implementing a Continuum of Service, even without changes in compensation.

This does *not* imply that changes to compensation are unnecessary. There is no guarantee that reservists' preferences will perfectly align with the services' demand for their skills. However, if reservists are willing to adjust their preferences in response to changes in compensation, policy makers can use compensation tools to *effectively* implement a Continuum of Service. Our survey data consistently demonstrate that reservists will respond to incentives. Respondents were more likely to prefer specific levels of reserve participation if incentives were targeted to individuals that accept these participation levels. This finding holds for both financial incentives, such as affiliation and mobilization bonuses, and retirement incentives, such as matching contributions to the Thrift Savings Plan and increases in annual retirement points.

On the other hand, across-the-board changes to compensation do not encourage participation in a Continuum of Service. While some changes to compensation, such as lowering the retirement age, might be very popular among certain reservists, they provide no direct incentive to volunteer for different levels of reserve participation. With no incentive to adjust preferences, there is no reason for individuals to change these preferences.

Our survey data do *not* provide evidence that implementing a Continuum of Service, or that increases in compensation to support a Continuum of Service, would significantly increase reserve retention. We caution that this is a relatively weak conclusion; our survey data reveal stated preferences of reservists, and there is no guarantee that these revealed preferences and reenlistment intentions will translate into actual behavior. However, changes to compensation appear to have a larger effect on reservists who have decided to participate than on individuals who are considering separation.

This implies that using compensation to increase one level of participation will decrease the number of reservists that would have participated at a different level. Consequently, policy makers need to *carefully* target compensation, in order to be sure that reservists are being provided an incentive to volunteer for levels of participation that meet the demand for their skills.

Finally, we recommend that policymakers use flexible compensation tools that are directly targeted to the change in participation in which there is interest. For example, our cost-benefit analyses do not examine changes in compensation for specific skill sets or experience levels. Changes in compensation need to be explicitly targeted to the populations intended to participate in a Continuum of Service. Furthermore, the cost of higher participation levels includes more than just the additional incentive necessary to induce volunteers to participate. Therefore, the Services need to consider the changes in total manning costs when contemplating any increase in reservist participation.

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