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Expectations About Civilian Labor Markets and Army Officer Retention

Michael L. Hansen, Shanthi Nataraj

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Preface

This document reports results from two research projects, titled “Evaluation of Retention Policies” and “Strategies to Improve Retention of Highest-Performing Officers.” The purpose of the first project was to optimize the return on investment of retention policies by evaluating economic trends in the private sector and the perceived merit of civilian versus military employment. The purpose of the second was to evaluate different measures of potential and performance and identify the areas in which the U.S. Army has been least successful in retaining its highest-performing officers.

In this document, we present and discuss the results of a variety of analyses. These efforts included a review of the existing literature concerning these topics; analyses of military personnel data, as well as civilian employment and earnings data; and incorporation of these results into existing theoretical models of retention. The findings should be of interest to those involved in enlisted and officer personnel management in the services and the U.S. Department of Defense and, more broadly, to those with an interest in military manpower, personnel, and compensation issues.

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Summary

Background

Despite relatively high levels of officer retention overall, Army personnel management officials have noted that junior officer retention is lowest for the individuals in whom the Army has made the largest investment. These officials are concerned that these officers might not have a full and accurate picture of the socioeconomic environment that they face if they leave active-duty service. If these personnel currently underestimate the additional costs of civilian employment, a more complete picture of the socioeconomic environment could raise retention and assist the Army in its competition with civilian employers.

The goal of this monograph is to develop a comprehensive picture of the socioeconomic environment officers will encounter if they leave active-duty service and to analyze the potential impact of these factors on Army retention. Ultimately, officers' expectations about civilian employment affect their retention decisions. Therefore, we also consider how major differences between military and civilian employment can be effectively communicated to officers making stay/leave decisions.

Junior Officer Retention

The data are consistent with the Army's perceptions about junior officer retention compared with the investment made in these officers. U.S. Military Academy (USMA) graduates cost the most to recruit. Reserve Officer Training Corps (ROTC) scholarship graduates cost less than

half of what it takes to recruit a USMA graduate, but this is appreciably more than ROTC nonscholarship and Officer Candidate School (OCS) graduates. However, junior officer retention is lowest for USMA graduates; we estimate that, by the eighth year of service, less than half are still on active duty. Similarly, only about half of ROTC scholarship graduates are still on active duty at that point. In contrast, about two-thirds of ROTC nonscholarship and OCS graduates are still on active duty at their eighth year of service.

Socioeconomic Differences Between Military and Civilian Employment

To identify major differences between the civilian and military employment environments, we reviewed two research strands. The first is the military manpower and personnel literature. The relevant research focuses on comparisons of benefits provided to service members with those available to civil-service and private-sector workers, and on characteristics of service that affect retention. Second, we reviewed the large labor economics literature. The relevant research focuses on general characteristics of labor markets and tries to identify causal explanations for these characteristics.

From this review, we identified several socioeconomic differences between military and civilian employment. Because officers understand how much they receive in their paychecks and the wages and salaries associated with civilian employment are the most visible benefit of leaving active-duty service, we concentrate on other differences between military and civilian employment in addition to cash compensation.

For clarity, we have organized these other differences into three major categories:

- unemployment and cash compensation, including
 - unemployment
 - underemployment
 - job instability
 - gender and race pay differentials

- noncash and deferred compensation, principally the availability and generosity of
 - health-care benefits
 - retirement benefits
 - quality-of-life (QoL) programs and conditions
- other characteristics of jobs, including
 - geographic relocation
 - spousal employment
 - deployments and time spent away from home.

Unemployment and Cash Compensation

Unemployment

The risk of unemployment lowers expected civilian compensation. There is not a single unemployment rate that represents this risk to officers. The possibility of unemployment varies by several factors, including

- gender, race and ethnicity, age, and educational attainment
- geographic region
- industry or occupation.

We estimate that, on average, civilian college graduates become unemployed once every 6.5 years and that, currently, the expected duration of an unemployment spell is about 22 weeks. However, some civilians have longer unemployment spells, including those who are involuntarily separated. In addition, about 7 percent of the unemployed left their employers voluntarily but were then unable to find work (authors' calculations based on BLS, 2011c, Tables A-11 and A-12, and 2009c).

Underemployment

Underemployment in the private sector represents an additional risk to officers making stay/leave decisions. In particular, some civilians are

- employed part time but prefer to work full time
- in jobs that do not fully use their skills or abilities
- earning less than they prefer or feel that they deserve.

Although there are no official statistics on underemployment, some researchers estimate that as many as 25 percent of the employed are underemployed (Lim and Golinelli, 2006). In general, underemployment leads to low job satisfaction and QoL, and underemployed workers are more likely than fully employed workers to consider quitting their jobs (Maynard, Joseph, and Maynard, 2006).

Although the risk of underemployment lowers the benefits of a civilian career, it does not always mean lower earnings. For example, some individuals work in jobs that do not fully use their skills or abilities, but they *voluntarily choose* to work in these occupations because of the pay they receive.

Job Instability

The economics literature generally concludes the following:

- Job stability has substantial, positive effects on civilian earnings.
- The number of jobs held by new labor-market participants adversely affects earnings later in their careers.

The average civilian holds seven different jobs in the first ten years of his or her career. Some of this instability is due to a poor job match, which lowers both job satisfaction and QoL. Although job stability and tenure generally have positive effects on earnings, switching jobs can have a significant payoff for some workers who voluntarily transition from one employer to another early in their careers. In fact, switching jobs accounts for about one-third of early-career wage growth in the private sector (Topel and Ward, 1992).

Officer wage growth is comparable to that of civilians, despite the fact that a significant portion of civilian wage growth is due to switching jobs. In other words, the structure of military compensation allows officers who remain on active duty to experience wage growth comparable to that of civilians without having to switch employers.

Gender and Race Pay Differentials

Comparisons of wages earned by men and women, and by white and black workers, in civilian jobs consistently show gaps between groups. Although there are differences between workers other than by gender and race that explain some of these differences, they cannot completely account for earnings disparities. Even if female and black officers find civilian jobs offering competitive salaries, the possibility of future discrimination during a civilian career does exist. Our analysis of recent veterans' civilian labor-market experiences demonstrates that college-educated veteran minorities also have earnings disparities.

Noncash and Deferred Compensation

Health-Care Benefits

Twenty percent of civilian workers, and approximately 10 percent of college-educated civilians, are not offered any health-care benefits (Cunningham, Artiga, and Schwartz, 2008). Participation in employer-sponsored health insurance plans has declined, most likely because of significant increases in premiums. We estimate that veterans without access to military health-care benefits are slightly more likely than non-veterans are to participate in employer-provided health plans.

Military health-care benefits are more generous than the benefits available to both private-sector and civil-service employees. Unlike most private-sector plans, TRICARE plans do not charge members a premium. Furthermore, civilians have higher out-of-pocket costs than officers do when they use health-care services. Therefore, it costs civilians more than it costs officers to purchase the equivalent level and quality of health care. For those with employer-provided health-care benefits, we estimate that it would cost civilians between \$1,200 and \$3,000 per year, on average, to obtain health care similar to that offered in the military. For those without employer-provided health-care benefits, the cost is much higher, between \$5,000 and \$11,800 per year, because employers often pay a sizable share of the premiums.

Retirement Benefits

The military retirement benefit is more generous than any private-sector benefit. Forty percent of private-sector workers, and 20 to 30 percent of white-collar workers, are not offered any retirement benefits (Costo, 2006), and the private-sector shift from defined-benefit to defined-contribution plans places more risk on employees and increases uncertainty about the value of retirement benefits. However, private-sector workers are vested in retirement systems much earlier in their careers and retain their account balances even if they leave their employer before retirement. Consequently, a higher percentage of private-sector workers actually receive the retirement benefits offered to them.

In addition, for officers making stay/leave decisions before the 20-year point, the *present value* of the military retirement benefit is much lower than the amount they will eventually receive. Because of a preference for immediate over deferred compensation, individuals are willing to accept immediate financial incentives that are smaller than expected future compensation. For this reason, future retirement benefits, although generous at the time they are actually received, can be worth relatively little to officers at the time they make stay/leave decisions.

Quality-of-Life Programs and Conditions

A relatively small percentage of civilian workers have access to QoL programs. In contrast, service members have access to a wide variety of these programs. With a few notable exceptions, however, less than 50 percent of service members use these programs (Lien et al., 2008). There is strong evidence that job satisfaction is tied to employee retention. However, several data limitations have prevented researchers from accurately measuring the relationship between QoL programs and both job satisfaction and retention. The limited evidence suggests that the relatively few QoL benefits available to civilians do *not* lead to low QoL in the private sector.

Other Characteristics of Jobs

There are several aspects of employment that affect officers more than civilians and are generally thought to reduce the value of military employment. Geographic relocation is much more prevalent in the military than in civilian settings. Furthermore, most civilian relocations are voluntary. Voluntary relocation can improve the QoL of individuals who choose to relocate, while involuntary relocation results in some individuals moving to locations that they (or their families) do not like. Furthermore, when families migrate, the spouse's employment and earning opportunities generally decline. This effect is similar for both military and civilian families who relocate; the difference between military and civilian families is the *extent* to which geographic relocation occurs. All of these factors suggest that officer QoL is lower because of geographic relocation.

Compared with civilians, officers also spend a disproportionate amount of time away from home; the nature of work-related travel is also very different for civilians and officers. Officers not only expect some deployment; many of them indicate that they would prefer it. However, there can be limits to the preferred amount of time away from home.

Although these characteristics reduce the value of military employment, it is not clear that officers have *unrealistic* expectations about these differences. Officers expect to migrate on a regular basis and have chosen to serve on active duty with the knowledge that they will be expected to relocate every few years. Officers with families have chosen to serve, implicitly accepting the deleterious effects on spousal employment as a condition of service. Finally, although the exact timing and nature of deployments remain uncertain, officers expect to deploy on a regular basis.

The Potential Impact on Retention

Economic theory suggests that retention depends, in part, on officers' *expectations* about civilian compensation. Unfortunately, we have very

little information on expectations about civilian employment opportunities, and we have no empirical evidence of officer impressions of the socioeconomic differences between military and civilian employment. As a result, we are unable to provide precise estimates of the impact that retention has on providing officers with a more complete picture of the socioeconomic environment.

However, officers probably overestimate the ease of finding civilian employment that offers income comparable to what they receive while on active duty. Because they overestimate the most visible benefit of civilian employment, it also is likely that they underestimate the additional, less visible costs of leaving active-duty service. This is consistent with a phenomenon in the psychology literature known as *optimism bias*, in which individuals overestimate the probability of positive outcomes and underestimate the probability of negative outcomes. If this is the case, improving the accuracy of officer expectations will *lower* expectations of civilian compensation and *improve* officer retention.

To estimate the potential impact on retention, we first estimate the potential impact on officer expectations about civilian compensation. We combine these estimates with estimates of the pay elasticity of retention; this allows us to link changes in officer expectations with potential changes in retention. For each socioeconomic difference, we consider three scenarios that, for convenience, we label “optimistic,” “realistic,” and “cautiously optimistic.”

The optimistic scenario is an environment in which officers are completely unaware of the socioeconomic differences between military and civilian employment or presume that it will not affect them when they leave active duty; in other words, they assume this cost of civilian employment to be zero. The realistic scenario is an environment in which officers have an accurate understanding of the additional costs of civilian employment and presume that, on average, these factors will affect them in the same way. The cautiously optimistic scenario is somewhere between the optimistic and realistic scenarios: Officers have some knowledge of the additional costs of civilian employment.

The difference in expected compensation between the optimistic and realistic scenarios is our estimate of the potential impact on expected compensation that communicating these socioeconomic dif-

ferences to officers who know little about the costs of civilian labor markets, or who have extremely optimistic expectations about their potential labor-market outcomes, can have. The difference in expected compensation between the cautiously optimistic and realistic scenarios is our estimate of the potential impact on expected compensation of communicating these socioeconomic differences to officers who have some knowledge of the costs of civilian labor markets, or who have somewhat optimistic expectations.

We regard these estimates as merely proxies for the actual changes in expected compensation because it is likely that some officers currently anticipate some of the additional costs of civilian employment and there will always be some officers with inaccurate expectations. In addition, some officers might *realistically* expect to have better-than-average outcomes in the civilian labor market. Our estimates are meant to reflect the average potential effects.

Some of the socioeconomic differences are not easily described in financial terms, but we can describe their *qualitative* impact on the value of civilian employment and, by extension, on retention. For example, some civilians are underemployed, working jobs that do not fully utilize their skills and abilities but that provide them with a desired level of earnings. Although this type of underemployment does not result in lower civilian compensation, it does lower the value of civilian employment because individuals are not working in the types of jobs they would prefer.

Of the socioeconomic characteristics for which we have quantitative estimates, health-care benefits appear to have the largest potential impact on retention. Better educating officers about the risk of civilian unemployment and about the value of military retirement are expected to have more-modest impacts on retention. In contrast, involuntary part-time employment has a much smaller predicted impact on expected civilian compensation and, by extension, on retention. Of course, the relative magnitudes depend on the plausibility of our assumptions. For some socioeconomic differences (e.g., the value of military retirement pay), it is likely that officers already have some understanding of the difference between military and civilian employment.

Communicating the Socioeconomic Differences to Officers

Effective communication is a critical element in improving officer retention. The financial education and literacy literatures indicate that identifying the appropriate channels through which information can be disseminated is a critical element in ensuring effective communication. This process, then, involves two steps. First, one must develop a method for gathering the information that the Army wishes to disseminate, including a mechanism for updating this information if and when it changes. Second, one must identify the delivery mechanism for disseminating the information to officers.

One option for gathering and updating information is to rely on external groups to collect the data and then to periodically retrieve this information from those groups' publications or Internet sites. Indeed, much of the data presented in this report are published in press releases and reports or are available on the Internet; however, the specific publications or other sources of the desired information are not always easily found on these groups' websites, and the data are not always tabulated or presented in a way that is amenable to the needs of the Army. An alternative would be to approach these groups and request that they (1) collect, analyze, and present the data in a way that is most useful to the Army and (2) disseminate this information on a periodic basis to the Army. If the Army were to coordinate with the other services and with the Office of the Secretary of Defense (OSD) when approaching these groups, the likelihood that they would be willing to provide the Army with regular updates rises.

The social marketing literature has identified several ways in which information can be disseminated. In the context of the stay/leave decision, there are three relevant methods to disseminate information to officers: through interpersonal communications, through collateral materials, or via the Internet. Each of these channels has its advantages, and the literature concludes that the most effective strategy is to use multiple channels.

Interpersonal, one-on-one communication is considered to be very effective. The primary advantages are that any officer questions

can be answered immediately, and the information can be tailored to address the costs and benefits that are relevant to the individual service member's particular situation. For enlisted personnel, the Army has a natural candidate for initiating these interpersonal communications through its career counselors. Army officers do not have comparable career counselors available to them, although the Army is experimenting with a program that will provide retention counseling to junior officers.

Collateral materials are written materials created for distribution to a target audience. Their primary advantage is that they can convey detailed information, usually at low cost. They are an effective way to follow up on interpersonal communications with more in-depth information or to reinforce the message being disseminated. Another strategy is to place collateral materials in locations where individuals are likely to read them. For example, officers already receive annual notification of the value of all their benefits; this could be supplemented with additional information about the relative costs and benefits of military and civilian employment. Information about differences in health-care benefits could be placed in medical treatment facilities, while information about the relative generosity of morale, welfare, and recreation and other QoL programs could be placed in these facilities.

Finally, the Internet has changed the way in which many individuals receive and process information, and it offers an additional opportunity for the Army to effectively communicate with officers. The primary advantages of the Internet are its immediacy (i.e., individuals can access information at their convenience) and its interactive capabilities (i.e., individuals can focus on the specific information in which they have a particular interest). Each of the services and OSD has developed a website as a way to disseminate information to both the public and to officers. These websites could be adapted to provide additional information about the socioeconomic differences between military and civilian employment. However, these websites are not specifically targeted to individuals making stay/leave decisions. The Army is experimenting with a junior officer retention website that has the potential to provide information these officers need to evaluate differences between military and civilian employment.

Our analysis indicates a need to strategically target USMA and ROTC scholarship graduates because junior officer retention is lowest for those in whom the Army has made the largest investment. Indeed, providing information on the costs of civilian employment *before these individuals even receive their commission* has its advantages. This would allow the Army to get a head start on junior officer retention at a time when these individuals are in a structured environment. For ROTC cadets, the cadre is well suited to the task of communicating these relative costs because its responsibilities already include motivating, educating, and preparing these individuals for service. Similarly, for USMA cadets, it is the West Point faculty's job to both counsel and mentor in preparation for service. Training these groups to effectively communicate the relative benefits of military service, and providing cadets with a framework to assess these factors as they approach stay/leave decision points, could be an effective way to ultimately improve retention.

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Abbreviations

ADSO	active-duty service obligation
B&B	Baccalaureate and Beyond
BAH	basic allowance for housing
BAS	basic allowance for subsistence
BLS	U.S. Bureau of Labor Statistics
BZ	below the zone
CCR	cumulative continuation rate
CPS	Current Population Survey
DoD	U.S. Department of Defense
DOPMA	Defense Officer Personnel Management Act of 1980
FEHB	Federal Employees Health Benefits
FY	fiscal year
GAO	U.S. Government Accountability Office
HMO	health maintenance organization
LUF	labor utilization framework
MOS	military occupational specialty

MWR	morale, welfare, and recreation
OCS	Officer Candidate School
OSD	Office of the Secretary of Defense
OUSD P&R	Office of the Under Secretary of Defense for Personnel and Readiness
POS	point of service
PPO	preferred provider organization
QoL	quality of life
QRMC	Quadrennial Review of Military Compensation
RMC	regular military compensation
ROTC	Reserve Officer Training Corps
TAPDB	Total Army Personnel Database
USMA	U.S. Military Academy

Introduction

Background

Despite relatively high levels of officer retention overall, U.S. Army personnel management officials have noted that junior officer retention is lowest for the individuals in whom it has made the largest investment. These officials are concerned these officers might not have a full and accurate picture of the socioeconomic environment that they face if they leave active-duty service. If these personnel currently underestimate costs of civilian employment, a more complete understanding of the socioeconomic environment could raise retention and assist the Army in its competition with civilian employers.

A recent survey of active-duty members gives some credence to this concern. Although military compensation of both enlisted personnel and officers is higher than compensation paid to comparable civilians (U.S. Department of Defense [DoD], 2008a), about half of all respondents believe that it would be easy to find civilian employment with comparable income and benefits (DoD, 2008b). This misperception is most acute for officers, and Army respondents are more optimistic than personnel in other services about the ease of finding comparable employment (Lien et al., 2008). Furthermore, the majority of respondents underestimate the cost of benefits provided to them as active-duty members (DoD, 2008b). Given these perceptions of military compensation, it is likely that Army officers also have inaccurate impressions of the socioeconomic environment that they face if they leave active-duty service.

Objective

The goal of this monograph is to develop a comprehensive picture of the socioeconomic environment officers will encounter if they leave active-duty service and to analyze the potential impact that these factors could have on Army retention. Ultimately, officers' expectations about civilian employment affect their retention decisions. Therefore, we also consider how major differences between military and civilian employment can be effectively communicated to officers making stay/leave decisions.

Organization

In the next chapter, we describe the military personnel data we use in our analysis and present descriptive statistics on officer retention and the Army's investment in junior officers. In Chapter Three, we provide an analytic framework that focuses on the role of individuals' expectations about the socioeconomic environment in the retention decision; in addition, that chapter also identifies the major socioeconomic differences between military and civilian employment. In the subsequent three chapters, we examine each of the socioeconomic differences in detail, providing a summary of the relevant literature and, when possible, presenting empirical evidence to quantify the differences. Chapter Seven provides estimates of the quantitative and qualitative impact that changing expectations can have on expected compensation and, therefore, officer retention. In Chapter Eight, we explore how the differences between military and civilian employment can be effectively communicated to officers. The final chapter provides some concluding thoughts.

Junior Officer Retention

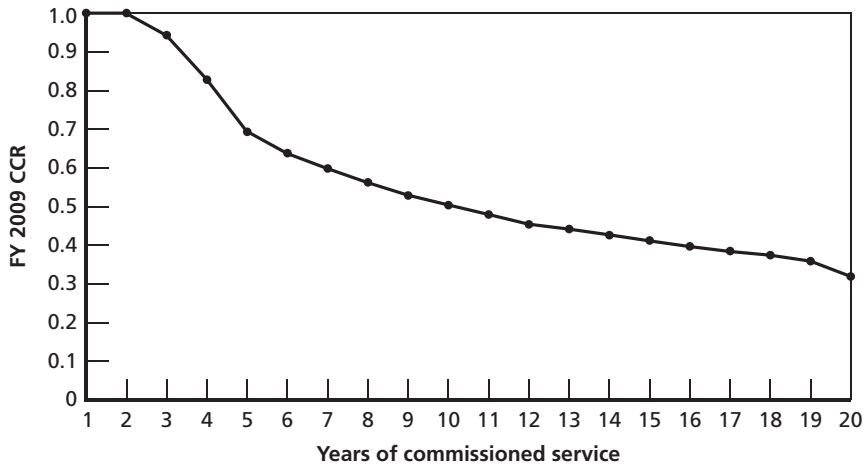
Most of the military data we use in our analysis come from the Total Army Personnel Database (TAPDB), the Army's data repository for its personnel data. These data contain complete histories on all commissioned officers who have served on active duty in the Army. In addition to each individual's demographic characteristics, these data include information on several time-varying characteristics, including years of service, pay grade, and branch.

As noted in Chapter One, Army personnel management officials are concerned that junior officer retention is lowest for the individuals in whom it has made the largest investment. We illustrate this point in Figure 2.1, using the TAPDB data. Figure 2.1 displays fiscal year (FY) 2009 cumulative continuation rates (CCRs) for Army officers.¹ Although retention rates vary from one year to the next, the retention profile implied by the FY 2009 continuation rates is qualitatively similar to that implied by other cohorts.

As Figure 2.1 shows, about 30 percent of commissioned officers have left active duty by five years of service; by ten years of service, about half of all officers leave active duty. According to these recent retention data, only 30 percent of accessions can expect to serve 20 years on

¹ Continuation rates reflect the proportion of officers on active duty at the beginning of FY 2009 who are still on active duty at the end of FY 2009. Because it is well known that continuation rates vary by years of service (Warner, 2006), we estimate CCRs for each year of service. CCRs, defined for each year of service as the probability that an officer accession will remain in the Army through that year of service, are estimates for *synthetic cohorts*, which combine data from all accession cohorts to simulate what retention behavior would be if a cohort were to behave like individuals in that fiscal year.

Figure 2.1
Fiscal Year 2009 Cumulative Continuation Rates



SOURCE: TAPDB.

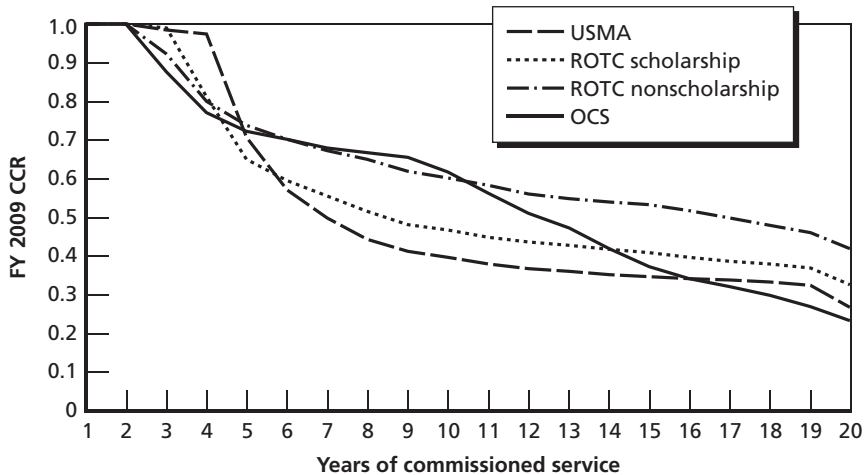
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active duty, the point at which officers become vested in the military retirement system.

As Wardynski, Lyle, and Colarusso (2010) shows, the retention profile shown in Figure 2.1 implies a disparity between personnel inventories and requirements; although the Army is able to meet its end-strength targets, it has a surplus of lieutenants and junior captains but a shortage of senior captains and majors (see Wardynski, Lyle, and Colarusso, 2010, p. 3). The authors cite the “excessive loss of junior officer talent” (p. 32) as partial motivation for the need for a comprehensive officer corps strategy.

Figure 2.2 displays FY 2009 CCRs for Army officers, calculated separately for different accession sources. As Figure 2.2 shows, there are substantial differences by accession source. U.S. Military Academy (USMA) graduates have an active-duty service obligation (ADSO) of five years, and, as Figure 2.2 shows, continuation rates drop significantly once these graduates complete their ADSO. By their eighth year of service, USMA graduates have the lowest CCRs of any accession source, at about 44 percent. Reserve Officer Training Program (ROTC) scholarship graduates have the second-lowest CCR by their

Figure 2.2
Fiscal Year 2009 Cumulative Continuation Rates, by Accession Source



SOURCE: TAPDB.

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eighth year of service, at about 51 percent.² ROTC nonscholarship and Officer Candidate School (OCS) graduates have higher CCRs at that point, at about 65 and 67 percent, respectively.³

Table 2.1 displays adjusted continuation rates for junior officers, by accession source, for FY 2002–FY 2009.⁴ Focusing on adjusted retention rates helps ensure that any differences in continuation rates by accession source are not driven by differences in other factors but reflect underlying differences in retention. The data in Table 2.1 are consistent with the relationship observed in Figure 2.1. Furthermore,

² These officers have a four-year ADSO, and, as Figure 2.2 shows, the drop in continuation rates at completion of ADSO mirrors the pattern for USMA graduates.

³ These patterns through the eighth year of service are consistent with those shown by Wardynski, Lyle, and Colarusso (2010).

⁴ We use logistic regression to summarize differences in junior officer retention, holding fiscal year, pay grade, years of commissioned service, and branch constant across accession source. We restrict the sample to officers with eight years or less of service and use data from FY 2002–FY 2009 to minimize the possibility that our results are driven by idiosyncratic outcomes in any single fiscal year.

Table 2.1
Adjusted Continuation Rates for Junior Officers, by
Accession Source

Accession Source	Predicted Continuation Rate
USMA	0.906
ROTC scholarship	0.919
ROTC nonscholarship	0.936
OCS	0.938

SOURCE: TAPDB.

these are all statistically significant differences, with the exception that ROTC nonscholarship and OCS graduates have continuation rates that are statistically equivalent to one another.

Table 2.2 lists the average cost to recruit an officer, calculated separately for each accession source. As Table 2.2 shows, USMA graduates cost more than \$400,000 to recruit. Although the costs to recruit ROTC scholarship and nonscholarship graduates are still large, at almost \$200,000 and \$115,000, respectively, they are significantly lower than the cost to recruit USMA graduates. In contrast, it costs the Army about \$27,000 for individuals who receive their commission after completing OCS. A comparison of Table 2.1 and Table 2.2 reveals that there is a negative relationship between average recruiting costs and continuation rates by accession source.

Table 2.2
Average Recruiting Costs, by Accession Source,
Fiscal Year 2010

Accession Source	Average Recruiting Cost (\$)
USMA	414,000
ROTC scholarship	197,000
ROTC nonscholarship	113,000
OCS	27,000

SOURCE: Chief, Accessions Division, Army G-1.

The data, then, are consistent with the Army's perceptions about junior officer retention compared with the investment made in these officers. Note, however, that this does not address the issue of *how* high retention would need to be to ensure a sufficiently high return on investment. In fact, it is possible that retention of junior USMA graduates is already high enough to justify the substantial investment. An assessment of that issue is beyond the scope of this analysis. Rather, the relative differences merely reinforce the reason that Army policymakers are concerned about the relatively low retention of USMA and ROTC scholarship graduates.

Socioeconomic Differences Between Military and Civilian Employment

As Chapter Two shows, junior officer retention is lowest for USMA and ROTC scholarship graduates, the individuals in whom the Army has made the largest investment. If the Army were able to successfully improve retention of these junior officers, it would help maximize its return on investment in these individuals. The Army is concerned that these officers might not have a full and accurate picture of the socioeconomic environment that they face if they leave active-duty service. If these personnel currently underestimate costs of civilian employment, a more complete understanding of the socioeconomic environment could raise retention and assist the Army in its competition with civilian employers.

Analysis of Current Population Survey (CPS) and active-duty service member survey data gives credence to this concern about officer expectations.¹ Using March 2010 CPS data, we estimate that average earnings of college-educated veterans are slightly higher than the median (i.e., the 50th percentile) earnings for college-educated civil-

¹ CPS data, which are collected by the U.S. Bureau of Labor Statistics (BLS), provide detailed information about the U.S. population and are used to calculate many official government statistics. The Annual Social and Economic Supplement, commonly referred to as the *March CPS*, provides information about employment and earnings during the previous calendar year. Other data sources, including the National Longitudinal Survey of Youth and the American Community Survey, are sometimes used to examine the labor-market experiences of veterans. See Black et al. (2008) for a discussion of the relative merits of these data sources.

ians.² However, as the Tenth Quadrennial Review of Military Compensation (QRMC) shows, compensation for active-duty officers is at or above the 70th percentile of earnings of college-educated civilians (DoD, 2008a). The implication is that, on average, veterans earn less as civilians than they did on active duty.

However, according to a recent survey of active-duty service members, about half of all respondents believe that it would be easy to find civilian employment with comparable income and benefits (DoD, 2008b). This misperception is most acute for officers, and Army respondents are more optimistic than personnel in other services about the ease of finding comparable employment (Lien et al., 2008). Furthermore, the majority of respondents underestimate the cost of benefits provided to them as active-duty members (DoD, 2008b). Given these perceptions of military compensation, it is likely that officers generally have inaccurate impressions of the socioeconomic environment that they face if they leave active-duty service.

If personnel underestimate the additional costs of civilian employment, retention will suffer unnecessarily, or the Army will need to take additional steps to maintain it. A more complete picture of the socioeconomic environment, then, could assist the Army in its competition with civilian employers for experienced personnel.

Therefore, in this chapter, we provide an analytic framework that addresses the impact of the socioeconomic environment and the role that officer expectations about civilian employment play in the retention decision. Following this discussion, we identify the major socioeconomic differences between military and civilian employment, on which we focus in the remainder of our analysis.

² In this analysis, we focus on male civilians who work full time and full year. We also restrict our attention to male veterans who have served in the military since the first Gulf War because current service members making stay/leave decisions are more similar to these veterans than to those who served in earlier periods.

Analytic Framework

Since the inception of the all-volunteer force, the supply of manpower has been of great concern to the military. Consequently, beginning in the 1970s, a variety of studies focused on how service members responded to several factors associated with military and civilian employment. Policymakers have consistently demonstrated an interest in the relationship between changes in compensation and changes in retention behavior, so virtually all retention models contain some measure of military compensation (Hansen and Wenger, 2005). However, these models have been adapted and expanded to account for other factors as well (J. Hosek, Warner, and Asch, 2007).

Several types of models have been developed since the 1970s, including the Annualized Cost of Leaving model and, more recently, dynamic programming models of retention (Warner and Asch, 1995; Goldberg, 2001; J. Hosek, Warner, and Asch, 2007).³ The most-widely used models, however, all share the same general characteristics. Specifically, these models all posit that retention depends on service members'

- relative taste for civilian versus military employment
- expectations about current and future civilian compensation if they leave active-duty service
- expectations about current and future military compensation if they remain on active duty.

In all models, higher expected civilian compensation reduces service member retention, while higher expected military compensation increases retention (J. Hosek, Warner, and Asch, 2007).

What Is Compensation?

There are two important points to note about these characteristics. First, although many consider *compensation* to be “financial remuneration,” its interpretation is actually much broader, to include anything

³ J. Hosek, Warner, and Asch (2007) describes these models in more detail and provides summaries of the empirical literature that examines the relationship between compensation and retention.

of value associated with employment (Kleinman and Hansen, 2005). In addition to direct monetary payments, then, *compensation* includes future monetary payments (e.g., retirement benefits), nonpecuniary compensation (e.g., annual leave, medical benefits, child care benefits), and even the working conditions associated with a job.

A career in the military has many attributes besides the monetary payments that service members receive, and expectations about these attributes, then, affect retention. Examples include deployments, the geographic location of future assignments, and spousal earning opportunities. Some models have formally addressed the question of how these factors affect retention.⁴ More often, the empirical literature accounts for several of these factors when estimating retention models without explicitly incorporating them into the theoretical framework (Hansen and Wenger, 2005).

Similarly, a civil-service or private-sector career has attributes besides the monetary payments that employees receive, and expectations about these factors also affect service member retention. With the exception of expected wages, however, these factors have not been formally incorporated into theoretical models of service member retention. Furthermore, with the exception of civilian earnings and unemployment rates, these attributes are not even incorporated into the empirical literature.

The Role of Service Member Expectations

Second, retention depends on service members' *expectations* about military and civilian compensation, not on actual compensation. Intuitively, individuals base their stay/leave decisions on what they expect to happen in the future, perceptions that might or might not be accurate. For example, a service member might choose to leave active duty because he or she anticipates a lucrative civilian career. It is possible that, once a service member has made the decision to leave active duty, he or she will discover that civilian employment opportunities are not as favorable as he or she had anticipated. Although individuals can

⁴ For example, J. Hosek and Totten (1998, 2002) and J. Hosek, Kavanagh, and Miller (2006) examine the relationship between deployments and reenlistment.

eventually reverse this decision and return to the Army (and some do), the decision to leave active duty has already been made, and Army policymakers would prefer that the service members it wishes to retain never make the decision to leave in the first place.

It is difficult, if not impossible, to precisely measure service member expectations about civilian employment opportunities. These opportunities can vary widely from one service member to another, and it is possible that the *accuracy* of impressions about civilian employment also varies. However, the models described here help illustrate the potential benefits of providing service members with a more complete picture of the socioeconomic environment that they face if they leave active-duty service.

Negative attributes of leaving active-duty service, such as the possibility of unemployment, can be thought of as costs of civilian employment. Providing a more complete picture of the socioeconomic environment that includes such attributes, therefore, can improve retention in the same manner as the use of financial incentives.⁵ If service members underestimate these additional costs, retention will be lower than if they had an accurate picture of the civilian environment. In this scenario, improving the accuracy of service member expectations would *lower* expected civilian compensation, even though the Army has not changed actual compensation at all.

Of course, the reverse can also be true: If service members underestimate negative attributes of military service, providing a more complete picture would lower retention. There is likely some uncertainty about certain aspects of military service (e.g., future deployments). However, it is reasonable to believe that service members are more uncertain about civilian employment opportunities than about the environment in which they are currently working. Therefore, to the extent that service members overestimate potential compensation or underestimate potential costs of civilian employment, improving the

⁵ Most theoretical models of retention assume that the effect of a \$1 increase in expected military compensation is equal to the effect of a \$1 decrease in expected civilian compensation (Hansen and Wenger, 2002a).

accuracy of service member expectations is likely to improve retention at little financial cost to the Army.

Socioeconomic Differences Between Military and Civilian Employment

Comparisons between civilian earnings and cash compensation in the military are common in the QRMCs. Traditionally, these comparisons focus on regular military compensation (RMC): basic pay, the basic allowance for housing (BAH), the basic allowance for subsistence (BAS), and the federal income tax advantage associated with the non-taxed allowances. The ninth QRMC concludes that RMC “at around the 70th percentile of comparably educated civilians” is “necessary to enable the military to recruit and retain the quantity and quality of personnel it requires” (DoD, 2002).⁶

The tenth QRMC recommends that comparisons between military and civilian earnings include not only RMC but also health-care and retirement benefits, as well as state income and Social Security tax advantages (DoD, 2008a). Using this expanded definition of *compensation*, the tenth QRMC concludes that military earnings “should meet the 80th percentile of comparable civilian compensation.”

Because basic pay, BAH, and BAS are all monetary payments, it is reasonable to assume that service members are aware of the amounts that they receive. Similarly, service members who receive special and incentive pays (e.g., enlistment and reenlistment bonuses, family separation allowance, hardship duty pay) also probably understand how much they receive. Furthermore, the wages and salaries associated with civilian employment are the most visible benefit of leaving active-duty service. Therefore, we concentrate on other differences between military and civilian employment besides cash compensation.

⁶ By definition, 70 percent of civilians have annual earnings at or below the 70th percentile of civilian earnings. In other words, RMC should be set so that only 30 percent of comparable civilians have earnings above those of service members. To calculate the 70th percentile, the ninth QRMC uses civilian earnings for men who work full time and year-round and estimates these percentiles separately for different amounts of work experience (DoD, 2002).

To identify these differences, we reviewed two research strands. The first is the military manpower and personnel literature. The relevant research focuses on comparisons of benefits provided to service members with those available to civil-service and private-sector workers and on characteristics of military service that might affect retention. Second, we reviewed the large labor economics literature. The relevant research focuses on general characteristics of civilian labor markets and tries to identify causal explanations for these characteristics.

From this review, we identified several socioeconomic differences between military and civilian employment. For clarity, we have organized these differences into three major categories:

- unemployment and cash compensation, including
 - unemployment
 - underemployment
 - job instability
 - gender and race pay differentials
- noncash and deferred compensation, principally the availability and generosity of
 - health-care benefits
 - retirement benefits
 - quality-of-life (QoL) programs and conditions
- other characteristics of jobs, including
 - geographic relocation
 - spousal employment
 - deployments and time spent away from home.

Although this is not a complete list of all socioeconomic differences between military and civilian employment, it contains the major characteristics studied in the literature.

In the following three chapters, we examine each of the socioeconomic differences between military and civilian employment in detail, providing a summary of the relevant literature and, when possible, presenting empirical evidence to quantify these differences.

Limitations of Our Analysis

Whenever possible, we present data for college-educated workers, and veterans in particular. This helps to ensure that our analysis reflects the potential experiences of junior officers in civilian labor markets. However, data at this level are not always available, and, in some cases, we present data for different groups (e.g., all veterans, not just those with college degrees; all college graduates, not just veterans). This is a limitation of our analysis, to the extent that the experiences of these different groups differ from what junior officers can expect in civilian labor markets.

In addition, we present the *average* outcomes in civilian labor markets. However, it is possible that USMA and ROTC scholarship graduates have *better* employment outcomes than the average worker. In other words, if these officers are above average, data on average outcomes might not be an accurate representation of what they can expect to encounter in civilian labor markets.

Our analysis of military personnel data, detailed in the appendix, provides mixed evidence of whether these officers who remain on active duty are better than ROTC nonscholarship and OCS graduates. In the military, the best measure of performance is the speed of promotion (Asch, 2001); if USMA and ROTC scholarship graduates are better than their counterparts, then one would expect to see them promoted faster. We do observe this relationship for promotion to major, but not for promotion to lieutenant colonel. Furthermore, although some USMA and ROTC scholarship graduates are promoted early, not all are, and there are early promotions for individuals from each accession source.

Although the evidence is mixed for officers who remain on active duty, it could still be the case that USMA and ROTC scholarship graduates who *leave* active duty are above average. Unfortunately, the data do not allow us to directly test whether this is true. However, our analysis of the Baccalaureate and Beyond (B&B) data, detailed in the appendix, suggests no clear correlation between several of the socioeconomic characteristics of civilian employment and college selectivity. In other words, civilians that are expected to be above average, based

on the prestige of the educational institution from which they graduated, do *not* have significantly better labor-market outcomes than their counterparts.

Therefore, we conclude that average labor-market outcomes are a reasonable proxy for the outcomes for USMA and ROTC scholarship graduates who leave active duty. However, despite the lack of empirical evidence supporting it, USMA and ROTC scholarship graduates might nonetheless *expect* to have above-average labor-market outcomes. We return to this issue in greater detail in Chapter Seven.

Unemployment and Cash Compensation

In this chapter, we examine several aspects of civilian employment to which officers are typically not exposed while on active duty. An officer might initially find civilian employment that offers an attractive compensation package. However, it is unlikely that the officer will spend his or her entire career working for the same employer. New entrants into civilian labor markets change jobs frequently; on average, civilians hold seven jobs in the first ten years of their career (Topel and Ward, 1992; BLS, 2008a). Even for workers with more labor-market experience, there is still a substantial amount of job switching (BLS, 2008a).

Therefore, the labor-market characteristics we examine in this chapter could affect officers at some point in a civilian career. These characteristics reduce the value of civilian employment but do not affect individual workers with certainty. Therefore, we consider them potential risks of civilian employment.

A prominent risk to civilian workers is the possibility of unemployment. Less severe, but still prominent, is the possibility of underemployment. In addition, many civilians must change jobs at some point in their career in order to experience significant wage growth. Finally, many women and nonwhite civilians earn significantly less than their male and white counterparts, differences in wages that cannot be explained by other observable characteristics of the worker (Gottschalk, 1997).

Unemployment

BLS considers someone *unemployed* if he or she is not employed and is actively looking for work.¹ BLS calculates the *unemployment rate*, the percentage of the labor force that is unemployed, on a monthly basis for several different populations. For example, every month, BLS calculates a national unemployment rate, separate unemployment rates for each state, and separate rates for different gender, race and ethnicity, education, and age groups. In addition, it calculates average annual unemployment rates for these populations. These average annual rates mask month-to-month variability in unemployment and subsume any within-year trends in the unemployment rate. However, comparisons of average annual unemployment rates over time give a general sense of the extent to which unemployment is rising or falling.

Civilian unemployment rates affect retention decisions because they directly affect expectations about future civilian compensation. Even if an individual finds suitable civilian employment before leaving active-duty service, it is possible that he or she will become unemployed in the future. This risk lowers expected future civilian compensation.

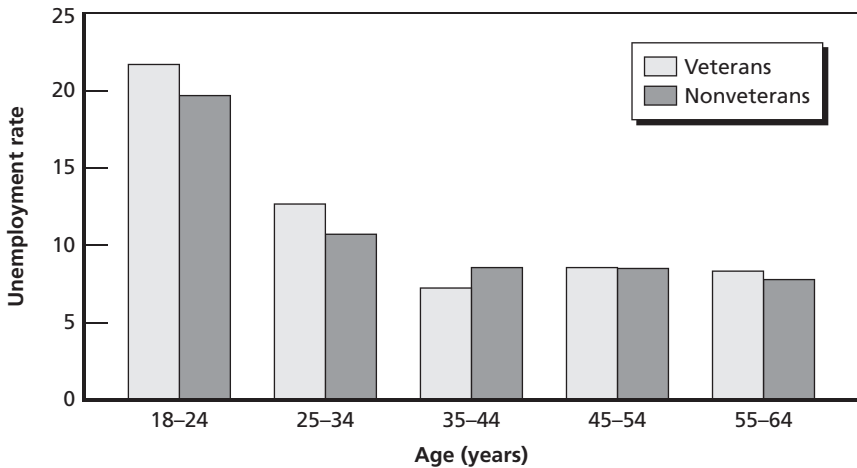
Age-Specific Unemployment Rates

Disaggregating unemployment rates reveals significant differences by age. Figure 4.1 displays the 2010 unemployment rate for veterans and nonveterans, calculated separately for five different age groups. In 2010, the unemployment rate for men ages 18 to 64 was 10.4 percent. As Figure 4.1 shows, however, unemployment rates generally decline with age over one's career. For men ages 18 to 24, the unemployment rate was 19.7 percent. Unemployment dropped to 10.9 percent for men ages 25 to 34 and dropped even further, to 8.5 percent, for men ages 35 to 44. For older men, unemployment declined further, to around 7 or 8 percent.

It is worth noting that, for the two lowest age categories, unemployment of male veterans is higher than that of nonveterans, while, for

¹ BLS classifies someone as unemployed "if they do not have a job, have actively looked for work in the prior 4 weeks, and are currently available for work." See BLS (2009c) for what it considers to be "actively looking for work."

Figure 4.1
2010 Unemployment Rate, Male Veterans and Nonveterans



SOURCE: BLS, 2011b, Table 2.

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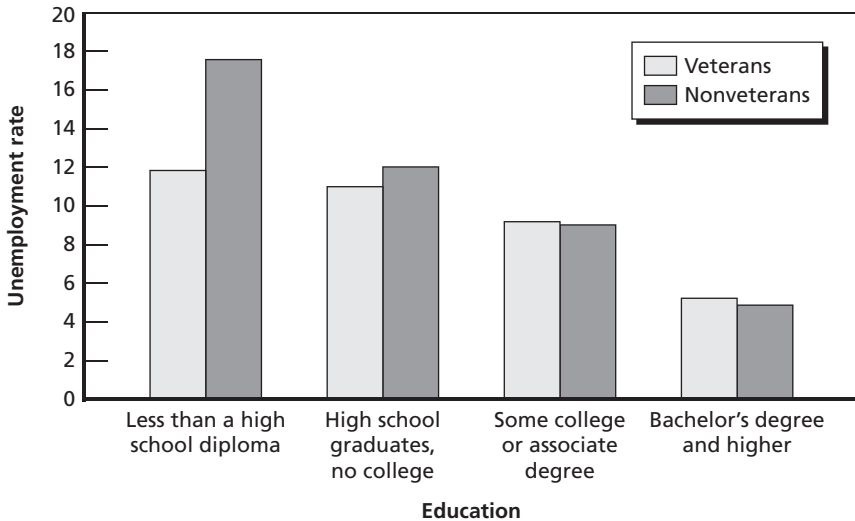
individuals ages 35–44, unemployment is higher for nonveterans. This is noteworthy because many of the unemployment data presented in this section are not calculated separately for veterans and nonveterans. Junior officers with eight years or less of commissioned service are typically between the ages of 21 and 30; Figure 4.1 suggests that these officers might initially expect above-average unemployment in the civilian labor market, with below-average unemployment starting at age 35.²

Education-Specific Unemployment Rates

There are also significant differences in unemployment rates by educational attainment. Figure 4.2 displays unemployment rates for veterans and nonveterans, ages 25 and above, in 2010, by educational attainment status. Unemployment rates are calculated separately for veterans and nonveterans. Note that these calculations effectively combine the four highest age categories shown in Figure 4.1. The two figures

² For an analysis of recent trends in veterans' unemployment, see Savych, Klerman, and Loughran (2008).

Figure 4.2
2010 Unemployment Rate for Workers Ages 25 and Over, Veterans and Nonveterans



SOURCE: BLS, 2011b, Table 3.

RAND MG1123-4.2

are not comparable, however, because Figure 4.2 includes women and Figure 4.1 does not.

As Figure 4.2 shows, unemployment rates decline monotonically with educational attainment. The unemployment rate for nonveteran workers without a high school diploma was 17.6 percent, and it was nearly 6 percentage points higher than the unemployment rate for veterans. In contrast, the unemployment rate for nonveteran workers holding a bachelor's degree or higher was only 4.9 percent, and the rates for veterans and nonveterans are similar. Because junior officers have at least a bachelor's degree, this suggests that, when data for veterans are not available, data on all college-educated workers might provide a reasonable proxy for their expected labor-market outcomes.

State-Specific Unemployment Rates

Researchers often incorporate state-specific unemployment rates into empirical models of service member retention. The rationale is that

local labor-market conditions affect individuals making stay/leave decisions. For example, if an individual considers returning home after leaving active duty, he or she will consider the unemployment rate in his or her home state. Similarly, if an individual plans to remain in the same geographic region after leaving active duty, he or she will consider the unemployment rate in the state where he or she is stationed.

Disaggregating national unemployment rates reveals significant variation by state. For example, the U.S. unemployment rate in May 2011 was 9.1 percent. However, Nebraska, New Hampshire, North Dakota, and South Dakota all had unemployment rates below 5 percent in May 2011, while California and Nevada had unemployment rates above 11 percent (BLS, undated, Unemployment Rates for States, Seasonally Adjusted, May 2011).

Even within a state, unemployment rates can vary substantially. Rural and urban areas within a single state often have different levels of unemployment. Furthermore, populous states often have several large cities in different urban areas. Unemployment rates can also differ from one urban area to another within the same state.

Occupation-Specific Unemployment Rates

Unemployment rates also vary significantly by occupation.³ Table 4.1 presents 2010 unemployment rates by occupational category, for all civilians ages 16 and over. In 2010, the average annual unemployment rate was 9.6 percent. As Table 4.1 shows, however, there were significant differences in unemployment rates by occupation. At one extreme, health-care practitioners had an unemployment rate of only 2.5 percent. At the other extreme, construction and extraction occupations had an unemployment rate of 20.1 percent. In general, unemployment was lowest in management, professional, and related occupations (an average of 4.7 percent) and highest in natural resources, construction, and maintenance occupations (an average of 16.1 percent).

These data suggest that the risk of unemployment varies by the occupation and industry in which service members are employed when they leave active-duty service. Our analysis of March 2010 CPS data

³ Unemployment rates by industry (not shown) have a similar amount of variability.

Table 4.1
2010 Unemployment Rates, by Occupation, Ages 16 and Over

Occupation	Unemployment Rate
Management, professional, and related occupations	4.7
Management	4.8
Business and financial operations	5.6
Computer and mathematical	5.2
Architecture and engineering	6.2
Life, physical, and social science	4.6
Community and social services	4.6
Legal	2.7
Education, training, and library	4.2
Arts, design, entertainment, sports, and media	8.9
Health-care practitioner and technical	2.5
Service occupations	10.3
Health-care support	7.6
Protective service	5.9
Food preparation and serving related	12.4
Building and grounds cleaning and maintenance	12.8
Personal care and service	8.7
Sales and office occupations	9.0
Sales and related	9.4
Office and administrative support	8.7
Natural resources, construction, and maintenance occupations	16.1
Farming, fishing, and forestry	16.3
Construction and extraction	20.1
Installation, maintenance, and repair	9.3

Table 4.1—Continued

Occupation	Unemployment Rate
Production, transportation, and material-moving occupations	12.8
Production	13.1
Transportation and material moving	12.4

SOURCE: BLS, 2011a, Table 25.

suggests that service members enter a variety of occupations when they leave active-duty service. About 64 percent of college-educated veterans work in management, professional, and related occupations, in which unemployment is lowest, while only 6 percent work in natural resources, construction, and maintenance occupations, in which unemployment is highest.

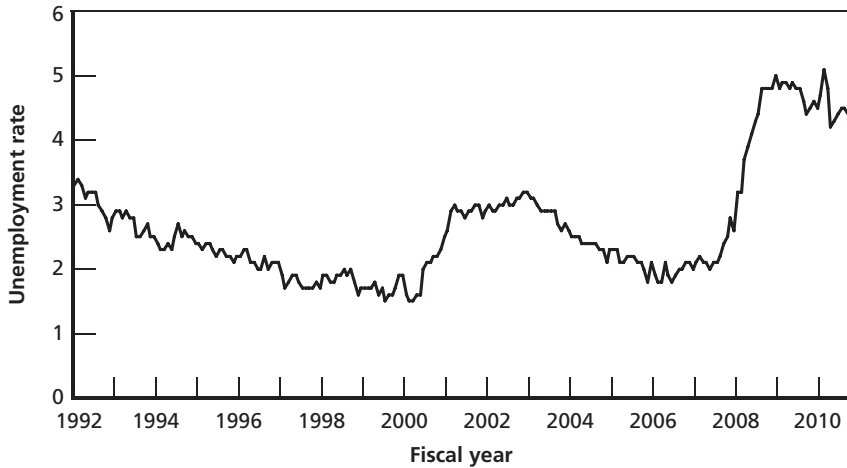
These differences in unemployment rates by occupation are consistent with the observation that less skilled workers are at greater risk of unemployment than highly skilled workers. Topel (1993) estimates separate unemployment rates for civilian men at the top and bottom of the civilian wage distribution. As one might expect, unemployment rates are much higher for men with relatively low earnings (prior to unemployment) than for those with relatively high earnings.

The Variability of Unemployment over Time

Figure 4.3 presents monthly unemployment rates for October 1992 through June 2011, for college graduates, ages 25 and above. These data are illustrative of changes in unemployment over time. Different groups' unemployment rates (e.g., for men and women with high school diplomas) differ in magnitude from the data in Figure 4.3 but show the same general trend.

As Figure 4.3 shows, there is a great deal of volatility in unemployment rates over time. Over this time frame, there are periods of generally declining unemployment and periods of generally increasing unemployment. Even when unemployment is generally declining (or increasing), unemployment rates sometimes rise (or fall) from one

Figure 4.3
Unemployment Rate for College Graduates Ages 25 and Over



SOURCE: BLS, 2009c, Series LNU04027678.

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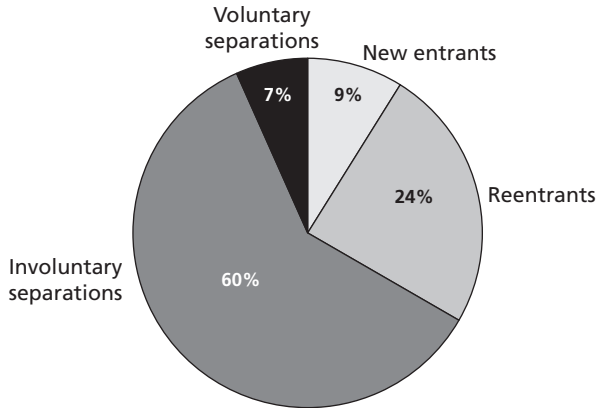
month to the next. As Figure 4.3 suggests, unemployment rates are unpredictable, even from one month to the next.

Reasons for Unemployment

Individuals can be unemployed for three general reasons. First, some individuals are entrants to the civilian workforce (e.g., recent high school and college graduates) and are not able to immediately find a job. Second, some workers involuntarily leave one job (*involuntary separation*) before finding another job. Third, some workers voluntarily leave one job (*voluntary separation*) before finding another job.

Figure 4.4 displays the percentage of unemployed persons in December 2010, by reason for unemployment. The unemployment rate in May 2011 was 9.1 percent. As Figure 4.4 shows, about one-third of unemployed individuals are entrants to the civilian workforce. For clarity, Figure 4.4 disaggregates these data into two categories: new

Figure 4.4
Percentage of Unemployed, by Reason for
Unemployment, May 2011



SOURCE: BLS, 2011c, Table A-11.

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entrants to the workforce (9 percent of the unemployed) and reentrants to the workforce (24 percent of the unemployed).⁴ The largest group of unemployed individuals is involuntary separations, 60 percent of all who are unemployed.⁵ Finally, voluntary separations make up about 7 percent of the unemployed population.

It is likely that an officer will face all three types of unemployment over a civilian career. In many respects, those who leave active duty initially resemble new civilian entrants to the workforce because many are searching for their first civilian job. In other respects, however, they resemble more-experienced civilians who voluntarily separate from an employer. These individuals have employment experience that distinguishes them from new entrants to the workforce, but some

⁴ Reentrants are individuals who were previously in the labor force, left for a period of time, and then return to the labor force. For example, a woman might leave a job to raise children and then return to the labor force when the children are older. Another individual might leave the labor force to attend school and then return to the labor force after receiving the degree.

⁵ Involuntary separations include temporary layoffs, permanent job losses, and completion of temporary jobs.

of these workers still spend some time without work before finding another job. In this section, then, we discuss each of the three reasons for unemployment and provide evidence about their risks.

New Entrants to the Civilian Workforce. As Figure 4.1 shows, civilian unemployment rates are highest for individuals between the ages of 18 and 24. These are the years in which most civilians are relatively new entrants to the workforce, around the age of 18 for high school graduates and the age of 22 for college graduates. The sharp contrast between unemployment rates for these civilians and for those of older civilians suggests that new entrants to the workforce have a relatively difficult time establishing stable employment.

Black and Lane (2007) examines labor-market outcomes of 20- to 24-year-old veterans in the first nine months after they leave military service. Black et al. (2008) extends this analysis, focusing on young veterans in the first two years after they leave the military. Of those who leave the military to pursue civilian employment,⁶ about two-thirds are employed within one week after leaving service (Black and Lane, 2007).⁷ It is likely that most of these individuals found suitable civilian employment before leaving service. However, although the majority finds employment immediately, the data still imply an unemployment rate of *32 percent* at one week after leaving service (Black and Lane, 2007).

Despite this initially high level of unemployment, unemployment rates decrease over time. At one month after leaving service, unemployment declines to about 25 percent (Black et al., 2008); at three months (i.e., 13 weeks) after leaving service, the unemployment rate is about 20 percent (Black and Lane, 2007). However, by six months after leaving service, veteran unemployment is about 11 percent (Black and Lane, 2007; Black et al., 2008). The authors interpret these find-

⁶ As Black et al. (2008) reports, many veterans enroll in college immediately after leaving service rather than enter the civilian labor force. The number of veterans who choose to do so could increase, given the recent amendments to the Post-9/11 GI Bill (the Post-9/11 Veterans Educational Assistance Act of 2008, Title V of Pub. L. 110-252, 2008).

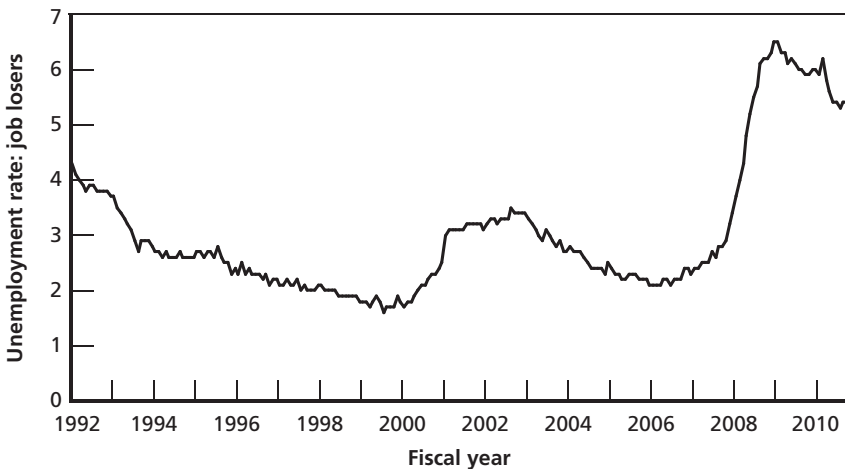
⁷ These results should be cautiously interpreted with respect to junior officers making the stay/leave decision because the veterans to whom they refer are likely to be older than the veterans included in these studies.

ings as evidence that initially high levels of unemployment are due to job search. Furthermore, the decline in unemployment rates over time is evidence that this search is relatively successful.

Involuntary Separations. BLS also calculates an alternative unemployment indicator, the number of unemployed individuals who were involuntarily separated, as a percentage of the civilian labor force. This is a more restrictive definition of *unemployment* because it excludes new entrants to the workforce and individuals who voluntarily leave a job before finding another job. These data are not widely reported. Figure 4.5 presents these data for October 1992 to June 2011, for all civilians ages 16 and over.

Comparing Figure 4.5 with Figure 4.3, we see that the variability in overall involuntary separations over time closely mirrors the variability in the unemployment rate for college graduates. In fact, the two are almost perfectly correlated.⁸ Therefore, even though the data on involuntary separations are not widely reported and are not available by

Figure 4.5
Unemployment Rate, Job Losers Ages 16 and Over



SOURCE: BLS, 2009c, Series LNS14023621.

RAND MG1123-4.5

⁸ The correlation between these two rates is 0.98.

educational attainment, changes in the better-recognized unemployment rate provide a good proxy to officers for changes in the likelihood of involuntary separation.

Officers' Risk of Involuntary Separation. Officers also face the possibility of involuntary separation while on active duty. The services have explicit "up-or-out" rules beyond the junior ranks for both officers and enlisted personnel (Asch and Warner, 2001b). If a service member is not promoted to the next rank ("up"), he or she is required to leave service ("out").⁹ To the extent that these service members would prefer to remain on active duty, these up-or-out rules create the risk of involuntary separation.

The Defense Officer Personnel Management Act of 1980 (DOPMA) (Pub. L. 96-513, 1981) provides a comprehensive system for career progression for the majority of officers (Rostker et al., 1993). For each officer community, promotions are governed by time-in-grade and time-in-service requirements before being eligible for promotion, and by promotion opportunities (the percentage of a cohort that will be promoted). Rostker et al. (1993) notes that "officers twice passed over for promotion, after a certain number of years, depending upon their particular grade, are to be separated from active service."¹⁰ This combination of competitive promotion (for a cohort, less than 100 percent will be promoted to the next pay grade) and separation of officers twice passed over for promotion generates the risk of involuntary separation for officers.

Unfortunately, our personnel data do not indicate the number of times (or even whether or not) an officer has been passed over for promotion, so we cannot estimate the prevalence of involuntary separation of officers. However, the Army's force management policies are clearly specified, providing officers with explicit rules on the conditions under which someone would be involuntarily separated. This stands in stark contrast to civilian labor markets, in which the risk of involuntary separation is uncertain.

⁹ Service members can also be required to leave service for other reasons, including misconduct and medical issues.

¹⁰ As Rostker (2004) notes, there are some very limited exceptions to this practice.

Voluntary Separations. Another reason an individual can be unemployed is that he or she voluntarily leaves a job and is not able to find another satisfactory job. As Figure 4.4 showed, about 7 percent of all unemployed individuals voluntarily separated from their employers. Although some individuals conduct on-the-job search (i.e., searching for a different job while continuing to work), others decide on full-time search (i.e., leaving one job in order to devote more time to searching for a more desirable job).¹¹

By definition, these decisions are purely voluntary, and it is difficult to argue that this is a risk of civilian employment. However, employers sometimes offer incentives to encourage voluntary separation in an effort to reduce the size and experience mix of their workforce (Hansen and Husted, 2005). Although individuals who accept these incentives appear to be making voluntary decisions, they might fear that, if they do not, they will eventually face involuntary separation (Mehay and Hogan, 1998). Therefore, even though these individuals receive financial remuneration in return for leaving their jobs, this type of voluntary decision is a risk of civilian employment.

Like civilian employers, the U.S. Army has occasionally reduced the size and experience mix of its workforce and offered financial incentives to encourage voluntary separation. For example, in the 1990s, the Army offered a voluntary separation incentive and special separation benefit to induce midcareer personnel to separate from service (Asch and Warner, 2001a). Even though these individuals receive financial remuneration in return for leaving their jobs, the possibility of this type of separation is a risk for officers.

Frequency and Duration of Unemployment Spells

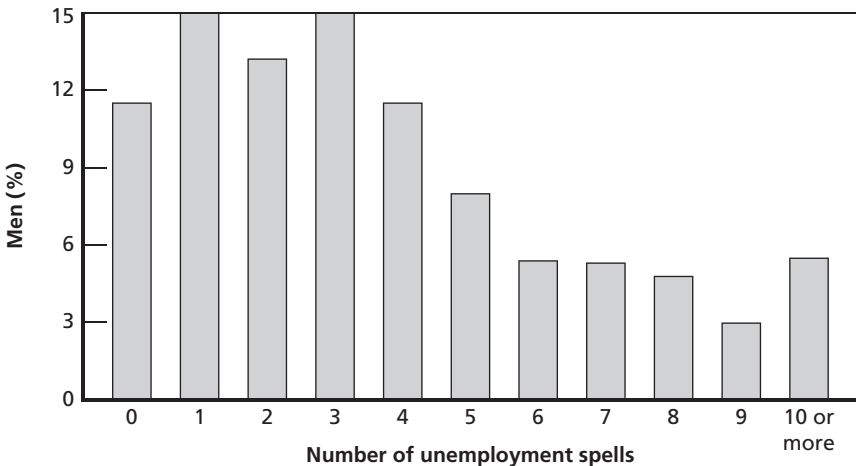
The unemployment rate measures the percentage of the labor force that is unemployed at a point in time. However, it does not necessarily represent the probability (risk) that an individual will be unemployed. Some individuals are never unemployed, while others find themselves frequently out of work and for extended periods. In other words, infor-

¹¹ For the theoretical job search literature, see Mortensen (1986) and Burdett (1978).

mation about the *frequency* and *duration* of unemployment spells provides additional information about the risk of unemployment.

Frequency of Unemployment Spells. BLS uses the National Longitudinal Surveys to gather information on individuals at multiple points of time in their careers. Using these data, BLS provides information on the frequency of unemployment spells for survey respondents. Figure 4.6 reproduces these data for college-educated men between the ages of 18 and 44.¹² As Figure 4.6 shows, 11.5 percent of these civilians have never been unemployed. Another 15.7 percent have been unemployed only once, most likely as new entrants to the civilian workforce. In contrast, about 5.5 percent of these civilians have been unemployed ten separate times or more. On average, college-educated men have

Figure 4.6
Number of Unemployment Spells from Ages 18 to 44, 1978–2008,
College-Educated Men



SOURCE: BLS, 2009b.

RAND MG1123-4.6

¹² Although the BLS data do not differentiate between different types of colleges, the B&B data, discussed in the appendix, do not show a strong correlation between undergraduate institution selectivity and reported number of unemployment spells.

approximately four separate unemployment spells between the ages of 18 and 44.¹³

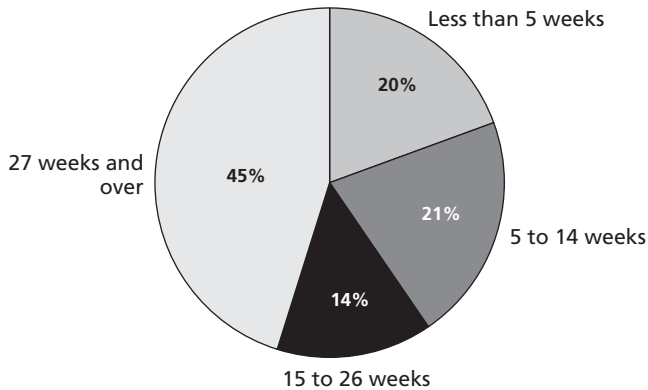
The frequency of unemployment also varies by educational attainment, gender, race and ethnicity, and age. The frequency of unemployment increases as educational attainment decreases. On average, men who do not have a high school diploma have more than eight separate unemployment spells between the ages of 18 and 44, more than twice the average number of spells for men with a bachelor's degree or higher. Men and women with bachelor's degrees or higher have the same average number of unemployment spells, although men are also more likely to never be unemployed. Whites have fewer unemployment spells than Hispanics, and both groups have fewer spells than blacks. As one might expect, the likelihood of any unemployment declines with age, and younger workers are more likely to have multiple unemployment spells (BLS, 2009a, 2009b).

Duration of Unemployment Spells. In May 2011, the unemployment rate was 9.1 percent. According to BLS data, for these individuals, the average amount of time spent unemployed was about 40 weeks. The median unemployment spell was much shorter, approximately 22 weeks. The substantial difference between the median and the average unemployment spell suggests that some unemployment spells are extremely long (BLS, 2011c, Tables A-1, A-12).

Figure 4.7 displays the percentage of unemployed persons in May 2011, by duration of unemployment. These data confirm that there is a great deal of heterogeneity in the amount of time spent unemployed. As Figure 4.7 shows, about 19 percent were unemployed for less than five weeks; another 21 percent were unemployed for between five and 14 weeks. However, nearly 60 percent were unemployed for relatively long periods. About 14 percent were unemployed for between 15 and 26 weeks, and 45 percent had been unemployed *for more than six months*.

¹³ This average is calculated by using the exact number of unemployment spells for all individuals. In contrast, Figure 4.6 combines the exact number of unemployment spells greater than ten into the "10 or more" category.

Figure 4.7
Percentage of Unemployed by Unemployment Duration,
May 2011



SOURCE: BLS, 2011c, Table A-12.

RAND MG1123-4.7

Valletta (1998, 2002) argues that average duration at a point in time does not always represent the duration of unemployment that a newly unemployed individual can *expect*. Valletta (1998) proposes a simple method to calculate expected duration, based on the percentage of the unemployed population defined as new entrants to unemployment. Using this method, we estimate the expected duration of unemployment spells in May 2011 to be about 22 weeks.

Valletta (1998) also demonstrates that expected duration of unemployment varies by reason for unemployment. As one might expect, involuntarily separated workers have the longest unemployment spells, while voluntarily separated workers and entrants to the labor force have shorter spells of unemployment.

Underemployment

Underemployment is such an amorphous concept that BLS does not officially calculate statistics to measure its prevalence. An underemployed individual is commonly defined as someone employed “at a

job that does not fully use one's skills or abilities" or "employed only part-time when one is available for full-time work" (see "Underemployment," undated). The concept also seems to incorporate individual preferences: For underemployment to be undesirable, someone must *want* to be employed in a job that more fully utilizes his or her skills or abilities (Bregger and Haugen, 1995).¹⁴ Other individuals might consider themselves "underemployed" if they are earning less than they would prefer or than they believe they deserve (Feldman, 1996).

Sociologists have developed measures of labor force behavior to measure underemployment. Most prominent is the labor utilization framework (LUF), which distinguishes between voluntary and involuntary part-time work and identifies workers in jobs with low earnings or in jobs that require fewer educational qualifications than the worker possesses (Clogg and Sullivan, 1983).

Lim and Golinelli (2006) uses CPS data to estimate the extent to which employed individuals are underemployed using the LUF in March 2004. According to the CPS, about 25 percent of all individuals reported in March 2004 that they were underemployed.¹⁵ Four percent of employed civilians stated that they worked part time but that they would prefer to work full time. Another 8 percent of workers reported that they were in jobs that required fewer educational qualifications than they possessed. The remaining 13 percent were employed in jobs that provided an annual income at or below 125 percent of the poverty threshold.

Maynard, Joseph, and Maynard (2006) finds a negative relationship between underemployment and job satisfaction. Workers who are "involuntarily employed part-time" or who believe they are "overqualified" or "underpaid" are less satisfied with their jobs and are more likely to intend to quit than are "fully employed" workers.

For active-duty officers making stay/leave decisions, then, the possibility of underemployment represents a risk of civilian employ-

¹⁴ This qualification makes underemployment more consistent with the condition of *unemployment*, in which individuals must be not working and actively seeking employment.

¹⁵ These data are taken from Figure 2.5 of Lim and Golinelli (2006), adjusting the percentages so that they represent the percentage of *employed* individuals in each category.

ment. The notion that some civilian jobs offer low wages is probably well understood. Therefore, we briefly discuss the other two sources of underemployment: involuntary part-time work and educational mismatch.

Involuntary Part-Time Work

Although BLS does not officially calculate underemployment statistics, it does measure the extent to which workers are employed part time “for economic reasons.” Some individuals work part time because they were unable to find full-time work and prefer part-time work to unemployment. There are other individuals, however, who originally worked full time but whose hours were cut back by their employers due to unfavorable business conditions (BLS, 2008b).

BLS data indicate that about 8.5 million individuals were employed part time for economic reasons in May 2011, about 6.1 percent of all employed workers. This is approximately the same as the number of individuals who lost their jobs and were unemployed (Figure 4.4). About 68 percent of these individuals are workers who originally worked full time but whose hours were cut back. This illustrates a risk to officers of civilian employment. An officer might leave the Army and accept a civilian job with competitive salary and benefits, only to discover that, in the future, his or her hours are reduced below the level he or she would prefer.

Variability in involuntary part-time employment closely mirrors the volatility in unemployment rates shown in Figure 4.3 and Figure 4.5 (BLS, 2008b). Therefore, the likelihood of this type of underemployment is unpredictable, further increasing the risk to officers of civilian employment.

Educational Mismatch

Gottschalk and Hansen (2003) is one of the few studies that rigorously examines the prevalence of employment in jobs that “require” fewer educational qualifications than the worker possesses. Its findings illustrate two central difficulties with this aspect of underemployment. First, some individuals employed “at a job that does not fully use one’s skills or abilities” might *prefer* to work in these occupations. Occupa-

tional choice depends on several factors, including the wage associated with that job and the type of job in which an individual prefers to work.

Second, subjective classifications of occupations are not always consistent with the empirical evidence. Some jobs that are considered noncollege jobs (i.e., jobs that do not require a college degree or that do not fully use a college graduate's skills or abilities) pay substantially more to college-educated workers than to individuals without a college degree. An occupation with a large college premium signals that college workers have skills that are valued by employers in that occupation. Virtually all occupations have both college and noncollege graduates, suggesting that very few jobs actually require educational qualifications to perform the tasks associated with them.

Therefore, it is difficult to determine whether this type of underemployment is a real risk to officers who leave active duty. There are probably some civilian workers who, in order to attain a certain level of earnings, accept jobs that do not fully use their skills and abilities. These individuals might be underemployed in the sense that they would prefer jobs that make better use of their skills. However, they prefer higher earnings more than working in a job that uses their skills.

Similarly, other civilian workers probably accept these jobs because they prefer to work in these occupations. These individuals might be underemployed in the sense that they would prefer jobs that offer higher salaries. However, they prefer working in the occupation of their choice more than working in a job that offers higher wages.

Job Instability

In the economics literature, *job stability* refers to the duration of jobs, typically the number of years an employee continuously works for the same employer (Stewart, 2002). On average, civilian employees with longer seniority with their employers have higher earnings than other workers with the same amount of work experience (Abraham and Farber, 1987). This empirical observation is consistent with a general consensus that job stability is good.

However, new entrants into civilian labor markets change jobs frequently. Researchers estimate that the average worker holds seven jobs in the first ten years of his or her career (Topel and Ward, 1992; BLS, 2008a). This high degree of turnover implies that very few civilian employees find stable jobs early in their careers. On the surface, then, officers appear to have a significant advantage over their civilian counterparts. Officers who remain on active duty have greater job stability than most civilian workers. Furthermore, the relative instability of jobs held by new entrants into civilian labor markets suggests that few officers who leave active duty will find stable jobs early in their civilian careers.

Job Stability and Earnings

The economics literature generally concludes that job stability has substantial positive effects on earnings. Abraham and Farber (1987) finds that, on average, “workers in longer jobs earn substantially more throughout the job than workers in shorter jobs.” For example, a worker who holds a single job for ten years will earn more *in each year* than another otherwise-identical worker who holds a sequence of two five-year jobs. Neumark (2002) concludes that the number of jobs held by new labor-market participants adversely affects earnings later in one’s career.

Of course, switching jobs can have a significant payoff for some workers who voluntarily transition from one employer to another. Topel and Ward (1992) concludes that wage gains associated with switching jobs account for at least one-third of the wage growth in one’s early career. That voluntarily switching jobs is associated with increases in earnings should not be surprising. Workers who voluntarily switch jobs are searching for a better match between employer and employee. The quality of this match depends on several factors, including the wage associated with that job. Therefore, one would expect that many workers who switch jobs do so in order to experience an increase in earnings.

For civilians, then, job stability can be desirable because more-stable employer-employee relationships are associated with higher earnings. However, it is probably the concept of *job security*, the extent to which job separations are involuntary (Stewart, 2002), that is most

important to private-sector workers. Workers who remain with their employers are those for whom there is a good employer-employee match. Workers who voluntarily switch employers often do so for higher earnings. In contrast, displaced workers suffer considerable, persistent earning losses (Jacobson, LaLonde, and Sullivan, 1993). Furthermore, involuntarily separated workers are much more likely than other workers to suffer additional displacement (Stevens, 1997).

Military Compensation and Job Stability

By definition, officers who remain on active duty do not switch employers. This would seem to preclude them from taking advantage of the significant wage growth associated with switching jobs. However, the structure of military compensation actually turns this apparent consequence of military employment into an advantage of military over civilian employment. RMC generally tracks the 70th percentile of civilian earnings, an earnings profile that increases with labor-market experience (DoD, 2008a). Therefore, officer wage growth is comparable to that of civilians, despite the fact that a significant portion of civilian wage growth is due to switching jobs (Topel and Ward, 1992). In other words, the structure of military compensation allows officers who remain on active duty to experience comparable wage growth *without having to switch employers*.

Gender and Race Pay Differentials

Comparisons of wages earned by men and women, and of wages earned by white and black workers, in civilian jobs consistently show gaps between groups. Gottschalk (1997) presents gender and race wage differentials since the 1960s. Earnings of black workers relative to those of white workers rose in the 1960s and early 1970s, but there has been little progress since 1975. Earnings of women relative to those of men have steadily risen over time, although there is still a large gap between earnings of the two groups. For both black workers and for women, then, there continue to be sizable pay differentials.

Gender and Race in Civilian Jobs

Many presume that these differentials are due to discrimination by employers. However, there are differences between workers other than gender and race that could be responsible for these differentials. For example, if a man chooses full-time work and a woman chooses part-time work, differences in earnings could be due to this voluntary choice and not due to gender discrimination.

Several researchers have tried to explain these persistent gender and race differentials (for examples, see Blau and Kahn, 2000, and Weinberger, 1998). Many factors have been identified as partial explanations, including

- full-time/full-year versus part-time/part-year employment
- educational attainment
- education quality
- labor-market experience
- occupational choice.

Accounting for these factors does generally reduce wage gaps, suggesting that these characteristics help explain both gender and race pay differentials. Even after adjusting for these other differences, however, most researchers continue to find wage gaps (Weinberger, 1998). This implies that discrimination is partially responsible for the lower earnings of black workers and of women.

Our analysis of recent veterans' civilian labor-market experiences, based on the March 2010 CPS data, demonstrates that black veterans earn somewhat more than their nonveteran counterparts, while white veterans earn slightly less, though neither difference is statistically significant. This premium for black veterans helps to reduce, but not eliminate, the pay differential between black and white veterans. Adjusting for all other observable characteristics, black veterans earn less than white veterans. If we confine our analysis to college-educated workers, the results are similar: Both black and white veterans earn less than their nonveteran counterparts, though the difference is not statistically significant in either case, and black veterans with college degrees earn less than their white counterparts.

These persistent gender and race pay differentials are therefore another risk of civilian employment to female and black officers. Even if these officers find civilian jobs offering competitive salaries, the possibility of future discrimination during a civilian career does exist.

Gender and Race in the Military

All else equal, gender and race pay differentials in the private sector can result in higher retention of female and black officers. Fricker (2002) finds that, in the Army, junior and midgrade black officers have higher retention than their white counterparts. However, the empirical results suggest that female officer retention is *lower* than that of male officers.¹⁶ S. Hosek et al. (2001) finds similar results across all services. These models do not account for expected civilian compensation, although they do generally account for differences in military occupational specialty (MOS), reenlistment bonuses, and promotion rates. Therefore, the race and gender effects capture all remaining unobserved differences between groups. The results for female officers suggest that some unobserved characteristics of their military service more than offset the deleterious effect of relatively low civilian compensation.¹⁷

The consensus in the literature is that “the military remains ahead of the private sector in promoting racial and ethnic integration and the employment of women in nontraditional jobs” (Quester and Gilroy, 2002). In both the enlisted and officer ranks, black service members make up a larger proportion of senior positions than they did of acces-

¹⁶ These models do not account for expected civilian compensation, so the race and gender effects capture all unobserved differences between groups.

¹⁷ The results for enlisted personnel are clearer: Empirical estimates generally confirm that female and black enlisted personnel reenlist at higher rates than their male and white counterparts (e.g., Smith, Sylwester, and Villa, 1991). These findings are noteworthy because these researchers adjust for gender and race and ethnicity differences in expected civilian earnings. In other words, female and black enlisted personnel reenlist at higher rates than gender and race pay differentials in the private sector would suggest.

sions; women make up at least as high a proportion of senior positions as they did of accessions.¹⁸

However, this does not mean that the military's work is finished in this area. S. Hosek et al. (2001) finds that black male officers are significantly less likely to be promoted than their white male counterparts and that white female officers are slightly less likely to be promoted than white male officers.¹⁹ This does not necessarily imply that there is widespread discrimination in the military. In fact, S. Hosek et al. (2001) reports that "nearly all" black and female focus-group participants believed that the promotion process is fair. Rather, it points to the need for the military to monitor trends in minority representation and to ensure that it offers all officers the same opportunities.

Summary

Unemployment

The unemployment rate represents a risk to officers making stay/leave decisions for two reasons:

- There is a possibility of *involuntary separation* from a civilian job.
- Unemployment rates vary greatly over time, and these changes are often unpredictable.

¹⁸ Quester and Gilroy (2002) compares the current percentage of O-7s who are black with the percentage of officer accessions 28 years ago who were black. It makes a similar comparison for black E-9s and accessions and for female enlisted personnel and officers.

¹⁹ The way in which military compensation is determined limits discrimination's impact on pay. For example, basic pay increases with rank and with length of service; if discrimination affects pay, then the mechanism by which this occurs is through differences in promotion opportunities or job assignments.

The results of S. Hosek et al. (2001) and Quester and Gilroy (2002) appear to contradict each other. However, the Quester and Gilroy (2002) results imply that the disparities in promotion rates at lower pay grades (found by S. Hosek et al., 2001) are overcome later on so that the representation of women and minorities in senior positions mirrors that of the original accession cohorts.

Some individuals are unemployed because they *voluntarily* leave a job and are not able to find another satisfactory job. When employers downsize and offer voluntary separation incentives, some workers might accept them because they fear that they will eventually lose their job anyway. This type of voluntary decision is another risk of civilian employment.

There is not a single unemployment rate that represents this risk to officers. The possibility of unemployment varies with several factors, including

- gender, race and ethnicity, education, and age
- geographic region
- industry or occupation.

Officers who remain on active duty are not immune from these risks. The Army's rules governing officer career progression generate risks similar to unemployment in the civilian labor force. With the possibility of involuntary separation, officers do not know with certainty that they will continue to be employed by the Army.

Underemployment

Underemployment in the private sector represents an additional risk to officers making stay/leave decisions. In particular, some civilians are

- employed part time but prefer to work full time
- in jobs that do not fully use their skills or abilities.

Most civilians involuntarily employed part time originally worked full time. However, their hours were cut back by their employers due to unfavorable business conditions. Trends in involuntary part-time employment follow trends in the unemployment rate. Therefore, the likelihood of this type of underemployment is unpredictable, further increasing the risk to officers of civilian employment.

Some researchers have examined the prevalence of employment in jobs that require fewer educational qualifications than the worker possesses. There are two difficulties with this definition of *underem-*

ployment. Some individuals *prefer* to work in these occupations, either because of the pay they receive or the type of work the job requires. Furthermore, very few jobs actually require educational qualifications to perform the tasks associated with them. Some jobs that are considered to require less education pay substantially more to workers with more education. This signals that educated workers have skills that are valued by employers in that occupation. Therefore, it is difficult to determine whether this type of underemployment is a real risk to officers who leave active duty.

Job Instability

The economics literature generally concludes that

- job stability has substantial, positive effects on civilian earnings
- the number of jobs held by new labor-market participants adversely affects earnings later in one's career.

Switching jobs can have a significant payoff for some workers who voluntarily transition from one employer to another. In contrast, displaced workers can suffer considerable, persistent earning losses.

Officer wage growth is comparable to that of civilians, despite the fact that a significant portion of civilian wage growth is due to switching jobs. In other words, the structure of military compensation allows officers who remain on active duty to experience comparable wage growth without having to switch employers.

Gender and Race Pay Differentials

Comparisons of wages earned by men and women, and of wages earned by white and black workers, in civilian jobs consistently show gaps between groups. Although there are differences between workers other than gender and race that explain some of these differences, they cannot completely account for earning disparities. Even if female and black officers find civilian jobs offering competitive salaries, the possibility of future discrimination during a civilian career does exist.

In the military, female and black officers make up at least as high a proportion of senior positions as they did of accessions. However,

there is some evidence that female and black officers are less likely to be promoted at lower pay grades than their male and white counterparts. This implies that the services overcome disparities in promotion rates at lower pay grades so that the representation of women and minorities in senior positions mirrors that of the original accession cohorts.

Noncash and Deferred Compensation

In this chapter, we examine the primary differences in noncash compensation between military and civilian employment. The main differences are the availability and generosity of health-care and retirement benefits. In addition, officers have access to several QoL programs that are typically unavailable from civilian employers; we also consider the QoL of officers and civilians in general terms.

Health-Care Benefits

Private-Sector Availability and Participation

Employers are the primary source of health insurance in the United States. In 2007, about 81 percent of employees were offered health-care benefits by their or their spouse's employer (Cunningham, Artiga, and Schwartz, 2008). This represents a slight decline (from 84 percent) in the availability of benefits in the past decade. About 75 percent of employees actually participate in employer-provided health plans.¹ The participation rate also has declined slightly since 2000.

Among the cohort of college graduates covered by the B&B survey, coverage rates were somewhat higher; in 2003, approximately 90 percent of college graduates reported working for an employer that offered medical insurance. In addition, although Cunningham, Artiga, and Schwartz (2008) does not provide results by educational status, the

¹ We consider a employer-provided health plan to be a health-care plan that is available through an individual's employer or through his or her spouse's employer.

study does disaggregate the data by broad income categories. Assuming that the earnings of college-educated employees fall in the highest category (above 400 percent of the federal poverty level), their coverage rate was 86 percent in 2007, a slight decline (from 91 percent) in the past decade.

Adjusting for demographic characteristics, veterans are less likely than nonveterans to participate in employer-provided health plans.² However, this masks significant differences within the veteran population. Military retirees have access to military health-care benefits, and only 52 percent of these veterans participate in employer-provided health plans (authors' tabulation of the March 2010 CPS). For other veterans, we estimate that they are 4.8 percentage points more likely than nonveterans to participate in employer-provided health plans. College-educated veterans who do not have access to military health-care benefits are approximately 3 percentage points more likely than similar nonveterans to participate in employer-provided health plans.

In the past decade, there have been dramatic changes in the types of health plans in which workers enroll (Claxton et al., 2007). In 2007, 57 percent of workers were enrolled in preferred provider organization (PPO) plans, compared with 42 percent in 2000. With these plans, insured members are billed for health care at reduced rates when they use the services of providers in the network (i.e., the preferred providers), similar to TRICARE Extra. When PPO members use the services of providers outside of the network, they are billed at higher rates, similar to TRICARE Standard.

This increase in PPO enrollment was offset by decreases in health maintenance organization (HMO) and point-of-service (POS) enrollment. In 2007, 21 percent of workers were enrolled in HMO plans, a decline of 8 percentage points since 2000. POS enrollment also declined by 8 percentage points during this period, to 13 percent in 2007. HMO plans are similar to TRICARE Prime: Insured members choose a primary care physician and obtain referrals for specialty care.³

² For comparability with Cunningham, Artiga, and Schwartz (2008), we focus on private-sector and government employees between the ages of 18 and 64.

³ POS plans have characteristics of both PPOs and HMOs.

Cost of Health Care in the Private Sector

Regardless of the types of plans in which civilian workers enroll, there have been extraordinary increases in the cost of health care (Claxton et al., 2007). From 2000 to 2007, the amount employees spent on health-care premiums more than doubled. This is true for both employee-only and family coverage. Researchers speculate that these cost increases are responsible for the declines in participation in the health-care plans available to civilians (Cunningham, Artiga, and Schwartz, 2008). Increases in health-care costs have consistently outpaced the rate of inflation, further exacerbating the cost to civilian workers.

Comparing Military and Civilian Health-Care Benefits

Some studies have tried to place a monetary value on the military health-care benefit (for examples, see Levy, Miller, and Brannman, 2000; Miller and Levy, 2004; and J. Hosek, Mattock, et al., 2005). These studies have concluded that TRICARE benefits are more generous than the benefits available to both private-sector and civil-service employees. This includes health-care benefits offered under the Federal Employees Health Benefits (FEHB) program, considered the gold standard among health-care benefit programs (Hansen and Koopman, 2005). TRICARE benefits are more generous than health-care plans available to civilians for two reasons. First, TRICARE plans do not charge members a premium, unlike PPO and HMO plans. Second, civilians have higher out-of-pocket costs than service members do when they use health-care services.

J. Hosek, Mattock, et al. (2005) is the most recent study that estimates the value of the military health-care benefit. It compares the cost of TRICARE with the cost of private-sector coverage for civilians with employer-provided health-care benefits. For individuals without dependents and with a median level of health-care use, civilian care would cost about \$1,200 per year more than TRICARE Prime.⁴ For

⁴ TRICARE Prime provides health care to active-duty personnel and their dependents in military treatment facilities. In contrast, TRICARE Extra provides care to dependents at in-network providers, while TRICARE Standard provides care to dependents at out-of-network providers. For more information, see TRICARE, undated. As J. Hosek, Mattock, et al. (2005) discusses, civilians without dependents typically have private-sector coverage

individuals with dependents and with a median level of health-care use, civilian care would cost about \$3,000 per year more than TRICARE Extra or TRICARE Standard.⁵

For civilians without employer-provided health-care benefits, the cost of health care would be much higher because employers often pay a sizable share of the premiums. For example, in 2007, the average percentage of premiums paid by employers for workers without dependents was 84 percent; for workers with dependents, the average was 72 percent (Claxton et al., 2007). Individuals who purchase their own health-care benefits, then, face higher premiums than individuals with employer-provided benefits. If civilians were able to purchase health-care benefits at the same rates negotiated by their employers, it would cost individuals without dependents an additional \$3,800 per year and would cost individuals with dependents an additional \$8,800 per year (see Claxton et al., 2007, Exhibit 6.3). Combining the J. Hosek, Mattock, et al. (2005) and the Claxton et al. (2007) results, then, we see that the cost of civilian care would exceed TRICARE costs for officers by \$5,000 per year for individuals without dependents and by \$11,800 per year for individuals with dependents. These still underestimate the costs of care because employer-provided health plans have lower premiums than comparable medical plans purchased by individuals.

Retirement Benefits

Private-Sector Availability and Participation

In 2005, only 60 percent of private-sector workers were offered retirement benefits by their employer (Costo, 2006). This represents a slight decline in the availability of benefits in the past decade. Of those offered retirement benefits, 85 percent actually participated in the plans available to them.

similar to TRICARE Prime; civilians with dependents have private-sector coverage similar to TRICARE Extra or TRICARE Standard.

⁵ These numbers are in calendar year 2007 dollars and have adjusted the J. Hosek, Mattock, et al. (2005) estimates for inflation, using the Consumer Price Index for medical care.

Access to retirement benefits depends heavily on the size of the firm at which an individual is employed. Costo (2006) estimates that about 45 percent of individuals working for the smallest firms (i.e., those that employ fewer than 100 workers) are offered retirement benefits, compared with almost 80 percent of workers at larger firms. Virtually all of the largest firms offer retirement benefits (Hattiangadi, 2001).

Higher access to retirement benefits was reported among the cohort of college graduates covered by the B&B survey; approximately 83 percent of respondents reported working for an employer that offered retirement benefits in 2003. Similarly, although Costo (2006) does not distinguish retirement benefits by education, the study does find that access and coverage were higher for white-collar workers than for blue-collar and service workers. Approximately 70 percent of white-collar workers had access to retirement benefits, compared with 60 percent of blue-collar workers and only 32 percent of service workers. Meanwhile, among those offered retirement benefits, take-up rates were 87 percent for white-collar workers, 85 percent for blue-collar workers, and 69 percent for service workers (Costo, 2006).

Adjusting for demographic characteristics, veterans are about 5 percentage points more likely than nonveterans are to be offered retirement benefits by their employer (authors' tabulation of the March 2010 CPS). This is due to the fact that veterans are more likely than nonveterans to work for government and, among those who work in the private sector, to work for relatively large firms. Once we adjust for these differences in employment outcomes, veterans are neither more nor less likely than nonveterans to be offered retirement benefits by their employer.

Restricting our analysis to college-educated veterans, we find that, after controlling for demographic characteristics, veterans are about 2 percentage points more likely than their nonveteran counterparts to be offered retirement benefits. Once we adjust for working in the public versus private sector, college-educated veterans are, if anything, less likely than their nonveteran counterparts to be offered retirement benefits by their employers. However, neither of these differences is statistically significant (authors' tabulation of the March 2010 CPS).

Changes in Private-Sector Retirement Benefits

Although there has been little trend in the *availability* of retirement benefits, there has been a dramatic shift in the *type* of benefits offered to private-sector workers. Hattiangadi (2001) and Costo (2006) document a sizable trend away from *defined-benefit* retirement plans in the private sector, with a shift toward *defined-contribution* plans.

Defined-benefit plans are similar in structure to the military retirement system and guarantee vested retirees a fixed monthly income. In contrast, defined-contribution plans are similar in structure to the Thrift Savings Plan. In defined-contribution plans, employees make tax-deductible contributions into their own retirement accounts, which are then invested in a variety of financial instruments. Some employers choose to match employee contributions, by agreeing to contribute a predetermined amount for every dollar that an employee contributes to his or her individual retirement account. For vested retirees, their monthly income at retirement depends on the performance of the financial instruments over time.

Employees appear to prefer defined-benefit plans to defined-contribution plans. As Costo (2006) notes, 97 percent of individuals offered defined-benefit retirement plans participate in them, compared with less than 80 percent of workers offered defined-contribution plans. The reasons for this preference are straightforward. Unlike defined-benefit plans, defined-contribution plans typically require individuals to make financial contributions in order to participate. Furthermore, the guaranteed fixed income associated with defined-benefit plans provides a predictable level of future income. In contrast, defined-contribution plans offer the possibility of higher future income but with a significant amount of risk and uncertainty: Individuals do not know how financial instruments will perform over time, and there is the possibility that they will lose value.

Despite employees' preference for defined-benefit plans, employers have shifted toward defined-contribution plans. The U.S. Government Accountability Office (GAO) concludes that this reflects employers' desire to control costs and to make them more predictable (GAO, 2007). There is a general belief that defined-benefit plans are more expensive to the employer than defined-contribution plans. Further-

more, employers' defined-contribution costs are typically limited to administrative costs and the extent to which they match employees' contributions. Because these contributions are based on predetermined rates, they are less volatile, and therefore more predictable, than financial market conditions.

Comparing Military and Civilian Retirement Benefits

The military retirement benefit is relatively generous when compared with retirement benefits available in the private sector (Hansen and Koopman, 2005). However, this is only true for service members who receive the military retirement benefit. Service members are not vested in the retirement benefit until 20 years of service (Office of the Under Secretary of Defense for Personnel and Readiness, 2005). In contrast, the Employee Retirement Income Security Act of 1974 (Pub. L. 93-406, 1974) requires private-sector employers to vest employees in their retirement system within five to seven years. Once vested, the retirement account balance belongs to the individual, even if he or she leaves the employer before retirement.

For service members who reach 20 years of service, the military retirement benefit is extremely generous. These individuals, who can be as young as 38 or 40, receive a fixed monthly income even when they leave the military to work in the private sector. In contrast, civilian employees typically do not receive retirement benefits until they are in their sixties.⁶ This translates into a tremendous financial advantage for military retirees, who can draw retirement benefits for decades before their private-sector counterparts become eligible.

The generosity of the military retirement benefit depends on the basic pay a member receives before retirement, as well as the years of service the member has accumulated (Office of the Under Secretary of Defense for Personnel and Readiness, 2005). For persons in service after September 8, 1980, monthly retirement pay is a percentage of the average of their highest 36 months of basic pay.⁷ This percent-

⁶ Before age 59.5, an individual faces an early-withdrawal penalty if he or she withdraws money from his or her retirement account.

⁷ Military retirement benefits are also adjusted each year for inflation.

age depends on the accumulated years of service at retirement: For example, an individual with 20 years of service receives 50 percent of basic pay. Therefore, an individual who retires as an O-4 with 20 years of service receives about \$40,300 per year in military retirement pay.⁸

However, for junior service members making stay/leave decisions before the 20-year point, the *value* of the military retirement benefit is much lower than this. The reason is that people have a preference for immediate over deferred compensation. Because of this preference, individuals are willing to accept immediate financial incentives that are smaller than expected future compensation (Kleinman and Hansen, 2005).

Hundreds of studies have examined these preferences and estimated the rate at which people are willing to trade future compensation for smaller, but immediate, incentives (Frederick, Loewenstein, and O'Donoghue, 2002). When quantifying time preference, most empirical researchers express this trade-off in terms of the *discount rate*. The discount rate is used to calculate the current value of deferred compensation. For example, a 10-percent discount rate implies that \$1,000 paid out in one year is worth about \$909 to an individual today; \$1,000 paid out in five years is worth only about \$621 today. For a 20-percent discount rate, the value of deferred compensation is even lower: \$833 if the person expects to receive \$1,000 in 1 year or \$402 if he or she expects to receive \$1,000 in five years. Warner and Pleeter (2001) estimates that, for officers with less than ten years of service, average discount rates exceed 20 percent.

Although the actual value of retirement to service members depends on a variety of factors, a stylized example serves as a useful illustration. Consider two officers who expect to reach the O-4 pay grade if they serve at least 20 years; one officer has currently accumulated four years of service, and the other has currently accumulated eight years of service. As we have shown, if an officer retires as an O-4 with 20 years of service, he or she would receive about \$40,300 per year

⁸ As of January 1, 2009, monthly basic pay for all O-4s with more than 18 years of service is \$6,723.30. Therefore, annual retirement pay for an O-4 with 20 years of service would be $12 \times 0.5 \times \$6,723.30 = \$40,339.80$.

in military retirement pay, which would total about \$1.5 million over his or her lifetime.⁹

However, the officer with four years of service will not begin to receive military retirement benefits for another 16 years; the officer with eight years of service will not begin to receive benefits for another 12 years. Therefore, with a 20-percent discount rate, the current value of retirement pay to these officers is substantially less than the \$1.5 million they will eventually earn. We estimate that, if the officer with four years of service leaves active duty immediately, he or she would need to earn only about \$2,200 more per year as a civilian to generate the same present value of earnings. The officer with eight years of service would need to earn about \$4,500 more per year as a civilian. The closer an officer is to the 20-year point, the more he or she would need to earn as a civilian to be indifferent between (1) an immediate civilian career and (2) serving on active duty until vested in the military retirement benefit.

Quality-of-Life Programs and Conditions

Military leaders believe that ensuring service members a high QoL is central to the cultivation and maintenance of a capable force. Improvements in QoL are believed to increase overall satisfaction with the military and to improve recruiting, retention, and readiness. Many civilian employers try to foster a balance between their employees' work and personal lives, reflecting a similar philosophy about the QoL of their own workforce.

What Is Quality of Life?

Although most agree on the importance of QoL, few concur on what the term covers and what factors are relevant to its improvement (Hansen, Wenger, and Hattiangadi, 2002). Aspects of QoL include the ability to participate in and enjoy "normal life activities," the cul-

⁹ We adopt the same assumption about life expectancy (79 years) as Hansen and Husted (2005) and, for simplicity, assume that the rate of inflation equals the growth in military pay.

tural and intellectual opportunities available to individuals, and living in an environment devoid of crime and environmental hazards (see “Definition of Quality of Life,” 1999; “Quality of Life,” undated [a]; and “Quality of Life,” undated [b]).

Given this broad definition of *QoL*, it is not surprising that employers offer employees a wide range of programs that are intended to improve *QoL*. In a review of the literature, Lien et al. (2008) concludes, “the treatment of *QoL* . . . is so broad that it includes virtually all components of noncash compensation offered to employees.” In fact, both health-care and retirement benefits, discussed earlier, are intended to improve the *QoL* of workers and their families.

Why Do Employers Explicitly Target Quality of Life?

Economic theory suggests two main reasons that employers provide employees with access to *QoL* programs and benefits rather than provide them with additional cash compensation to purchase these programs and benefits (Murray, 2004; Oyer, 2005). First is the belief that employees should have access to, and use, these programs. Employers believe that these benefits make employees “better off,” thus improving *QoL*. Second, employers believe that employees (1) will not purchase these benefits on their own (or in the quantities that employers believe they should be used) or (2) will have to pay a significantly higher price to purchase them on their own.

Military health-care benefits, discussed earlier, are a good example. Given the nature of the military mission, DoD strongly believes that service members should have access to, and use, high-quality health care (TRICARE, undated). The relatively low cost (to the service member) of health care removes an obstacle to the use of care and helps to ensure that personnel are fit for duty and able to perform. In addition, individuals would have to pay significantly higher premiums in order to purchase health care on their own.

Employers also believe that improvements in *QoL*, through the provision of *QoL* programs and benefits, will increase overall job satisfaction and improve recruiting and retention of employees. In fact, job satisfaction is often considered part of *QoL*, and higher job satisfaction reflects higher *QoL* of employees (Hansen, Wenger, and Hattiangadi,

2002). For this reason, overall job satisfaction is an important indicator of the extent to which employee QoL is high.

Private-Sector Quality-of-Life Programs

The BLS National Compensation Survey (March 2010) indicates that, in addition to employer-sponsored health-care and retirement benefits, most private-sector employees receive paid time off for various reasons. These typically include holidays (78 percent of workers), vacation (77 percent), and sick leave (62 percent). Full-time workers are more likely than part-time workers to receive paid time off. The amount of paid vacation generally increases with the number of years an individual has been working for the same employer. In contrast, service members accrue paid vacation at the same rate, regardless of length of service (Hattiangadi, 2001).

Private-sector employees often have access to life insurance and both long- and short-term disability benefits. BLS National Compensation Survey data indicate that about 60 percent of workers receive basic life insurance through their employers, and most of these employees are not required to pay any of the premiums (BLS, 2007, 2010b). In addition, about 40 percent of workers receive short-term disability benefits, and about 30 percent receive long-term disability benefits. For each of these benefits, participation rates equal or exceed 95 percent.

A relatively small percentage of civilian workers have access to other QoL programs. The most prominent of these are child care benefits, probably due to increases in the number of working mothers (King and Baker, 2001). In 2008, about 15 percent of private-sector workers had access to some form of employer-provided child care assistance.¹⁰ Access to child care benefits has generally increased in the past 20 years (King and Baker, 2001).

However, most of this assistance was indirect, through the provision of child care resource and referral services (BLS, 2007). Only 5 percent of workers were employed by firms that directly provide child

¹⁰ Estimates on child care assistance and other benefits, such as fitness centers, are from the 2008 National Compensation Survey, Employee Benefits in the United States, March 2008, because more-recent surveys do not provide as much detail about some of these programs.

care (either on- or off-site); 3 percent of workers received funds from their employers to cover the cost of child care. In contrast, Lien et al. (2008) estimates that 20 percent of service members with children used DoD child care programs in the past year.

BLS (2007) provides data on access to other private-sector QoL benefits, none of which is as prevalent as access to child care assistance. These include fitness centers (13 percent of workers), long-term care insurance (13 percent), adoption assistance (11 percent), flexible workplace arrangements (5 percent), and subsidies for commuting via public transportation or car pool (6 percent). It is worth noting that these data reflect only *access* to QoL benefits and that usage of these programs can be quite low. For example, civil-service employees have greater access to flexible workplace benefits than do private-sector workers, with about 70 percent of federal employees eligible for this benefit (U.S. Office of Personnel Management and U.S. General Services Administration, 2007). However, slightly less than 10 percent of eligible federal employees actually use this benefit.

Quality-of-Life Programs in the Military

The recent Defense Advisory Committee on Military Compensation divides QoL programs into two categories: community and family support programs and morale, welfare, and recreation (MWR) programs (DoD, 2006). Community and family support programs include child care programs, family support centers, spouse employment services, financial counseling services, and relocation assistance. MWR programs include commissaries, exchanges, fitness centers, libraries, and golf courses.

Lien et al. (2008) analyzes data from the December 2006 Status of Forces Survey of Active-Duty Members¹¹ to identify the extent to which service members use these QoL programs. Of the programs on

¹¹ Prior to the development and fielding of the Status of Forces Surveys, the Defense Manpower Data Center fielded similar surveys, including the Survey of Active Duty Personnel and the DoD Surveys of Officers and Enlisted Personnel.

which they focus,¹² only the commissaries, exchanges, and fitness centers were used at least once in the past year by more than 50 percent of the population. Comparison of these findings with the results of previous surveys (Hansen and Wenger, 2002b) suggests that the extent to which service members use QoL programs has not changed much over time.

Data on satisfaction with QoL programs provide additional information about the extent to which these programs actually affect service member QoL. Hansen and Wenger (2002b) analyzes data on satisfaction with child care programs and family support centers in the Navy. Overall, satisfaction with child care programs is low; less than 30 percent of respondents reported being satisfied with the child care programs available to them.¹³ Similarly, of those who indicate they have used family support centers, less than 40 percent reported being satisfied with these programs. About 40 percent of respondents indicated that they have never used family support programs.

Harrison, Brennan, and Levine (2000) analyzes survey data on satisfaction with on-base fitness facilities. Respondents were asked how their QoL would be affected if these programs were not available. About 80 percent of service members indicated that their QoL would decrease “at least slightly” without these programs, with more than one-third of service members reporting that QoL would decrease “greatly.” Interestingly, two-thirds of spouses indicated that their QoL would also decrease if these programs were not available.

Job Satisfaction, Quality of Life, and Employee Retention

There is strong evidence that job satisfaction is tied to employee retention. Hansen, Wenger, and Hattiangadi (2002) demonstrates that, for both Navy officers and enlisted personnel, service members who report they are “satisfied with the military way of life” are more likely

¹² Lien et al. (2008) analyzes nine QoL programs: arts and crafts, child care, commissaries, community centers, exchanges, fitness centers, libraries, outdoor recreation, and youth centers.

¹³ The survey asks respondents to indicate satisfaction with “acceptable and affordable child-care,” so it is not possible to determine whether low levels of satisfaction result from dissatisfaction with the quality of child care or with its cost (or both).

to remain on active duty than are other service members. Woefel and Savell (1978) finds a similar relationship between satisfaction with the Army and intentions to remain on active duty, an empirical result that can be found throughout the literature.

QoL programs are believed to increase overall job satisfaction and, by extension, to increase employee retention. Several data limitations, however, have prevented researchers from accurately measuring the causal relationship between QoL programs and both job satisfaction and retention. Ideally, one would like to compare job satisfaction and retention of those with and without access to QoL programs, holding all other factors constant. In the military, however, any lack of access to QoL programs is generally correlated with the location at which a service member is stationed (Hansen, Wenger, and Hattiangadi, 2002).¹⁴ Therefore, we cannot distinguish between a job satisfaction or retention effect associated with lack of access to QoL programs and one associated with a particular location (beyond the absence of QoL programs).

The relationship between *use* of QoL programs and satisfaction and retention can also be misleading. Buddin (1998) concludes that use or nonuse of QoL programs is correlated with additional factors that contribute to one's satisfaction or dissatisfaction with the military. Therefore, an observed relationship between QoL program use and retention could reflect the impact of these additional factors. In addition, there might be value to having the *option* to use QoL programs, even if service members currently choose not to use them (Hansen, Wenger, and Hattiangadi, 2002).

Direct comparisons of job satisfaction in military and civilian work environments are rare. Blair and Phillips (1983) is an exception. Active-duty service members and civilians were asked to indicate their satisfaction with several different aspects of their job:

- skill variety
- task identity
- task significance

¹⁴ For example, a sailor aboard a deployed aircraft carrier does not have access to a military-run golf course.

- autonomy
- feedback
- dealing with others
- friendship opportunities
- job challenge
- comfort
- learning a valuable skill
- safety
- healthful condition
- pay
- job security
- relationship with coworkers
- competent supervisors
- promotion chances.

The authors present a measure of overall job satisfaction. Both male and female civilians reported higher overall job satisfaction than service members. When looking at the individual components of job satisfaction, the only component for which male service members reported higher satisfaction than their civilian counterparts was “job security.” For women, the only components for which service members reported higher satisfaction were “dealing with others,” “job security,” and “promotion chances.” For most other aspects of their job, civilians reported higher satisfaction than their military counterparts.¹⁵

Given the many changes in the active-duty service environment since this study was conducted, we hesitate to draw strong conclusions from these results. However, this evidence suggests that the relatively abundant QoL programs in the military have not translated into relatively high QoL for service members. This does *not* mean that QoL programs are unimportant. In principle, access to these programs could help offset some of the deleterious effects of other aspects of a

¹⁵ For some aspects, the differences between service members and civilians were not statistically different. See Table 1 and Table 2 of Blair and Phillips (1983) for more detail.

service member's work environment.¹⁶ For example, spousal employment or relocation services can help officers deal with frequent relocation. These QoL benefits would be less important in the civilian labor market, in which relocation is less common. Rather, we find no evidence that the paucity of QoL benefits available to civilians leads to low QoL in the private sector.

Summary

In this section, we summarize the noncash advantages of military and civilian employment to be considered in stay/leave decisions.

Health-Care Benefits

Health-care benefits to consider include the following:

- Twenty percent of civilian workers and 10 percent of college-educated civilian workers are not offered any health-care benefits.
- Participation in employer-sponsored health insurance plans has declined, most likely because of significant increases in premiums.
- Private-sector enrollment has shifted from HMOs (similar to TRICARE Prime) to PPOs (similar to TRICARE Extra and TRICARE Standard).
- For those with employer-provided health-care benefits, health care costs a civilian without dependents at least \$1,200 more per year than it costs an officer, and it costs a civilian with dependents at least \$3,000 more per year than it costs an officer.
- For those without employer-provided health-care benefits, the cost of health care to civilians would be much higher because employers often pay a sizable share of the premiums. The cost for a civilian to purchase his or her own health-care plan would exceed an officer's cost of TRICARE by at least \$5,000 per year

¹⁶ Sanchez et al. (2004) concludes that "the perceived amount of job pressure and the belief that the biggest problem in their life was the result of job-related issues [are] the two strongest predictors of job satisfaction" in the military.

for individuals without dependents and \$11,800 per year for individuals with dependents.

Retirement Benefits

Three main aspects of retirement factor into the stay/leave decision:

- Forty percent of private-sector workers and 20 to 30 percent of college-educated workers are not offered any retirement benefits.
- The private-sector shift from defined-benefit to defined-contribution plans places more risk on employees and increases uncertainty about the value of retirement benefits.
- Service members who receive military retirement benefits have a tremendous financial advantage over their private-sector counterparts.

These differences in retirement benefits all favor active-duty service over private-sector employment. However, private-sector workers are vested in retirement systems much earlier in their careers. Furthermore, they retain their account balances even if they leave their employer before retirement. Consequently, a higher percentage of private-sector workers actually receive their retirement benefits.

In addition, for officers making stay/leave decisions before the 20-year point, the *value* of the military retirement benefit is much lower than the amount they would eventually receive. The reason is that people have a preference for immediate over deferred compensation. Because of this preference, individuals are willing to accept immediate financial incentives that are smaller than expected future compensation.

Quality-of-Life Programs and Conditions

A relatively small percentage of civilian workers has access to QoL programs, such as child care benefits and fitness centers. In contrast, service members have access to a wide variety of community and family support programs and MWR programs. With a few notable exceptions, however, less than 50 percent of service members use QoL programs at least once a year.

There is strong evidence that job satisfaction is tied to employee retention. However, several data limitations have prevented researchers from accurately measuring the relationship between QoL programs and both job satisfaction and retention.

Finally, direct comparisons of job satisfaction in military and civilian work environments are rare. The limited evidence suggests that civilians report higher overall job satisfaction than service members. This does not mean that QoL programs are unimportant. Rather, we find no evidence that the paucity of QoL benefits available to civilians leads to low QoL in the private sector.

Other Characteristics of Jobs

In this chapter, we examine several aspects of employment that affect officers more than they affect their civilian counterparts. These factors are generally thought to reduce the value of military service. Therefore, we consider them costs of military service.

All service members are required to rotate from one assignment to another during their careers; these rotations often involve geographic relocation. Many of these moves can be to less desirable locations and are involuntary. In addition, many service members with families discover that it is difficult for their spouses to find acceptable employment. This deleterious effect on spousal employment is primarily due to the frequent geographic relocation associated with service. Finally, service members spend a disproportionate amount of time away from home, due in part, but not solely, to deployment requirements.

Geographic Relocation

Frequent geographic relocation is a well-known characteristic of active-duty service. All service members are required to frequently rotate from one assignment to another during their careers. This relocation is considered to be a cost of military service. DoD and the services are required by law to provide relocation assistance to service members and their families. This relocation assistance includes the provision of information and counseling about housing, child care, and spousal employment, as well as reimbursement of relocation expenses. The services also provide inducements or compensation to service members to

accept some assignments (Cymrot and Hansen, 2004). The Secretary of Defense is also required to “make every effort . . . to stabilize and lengthen tours of duty to minimize the adverse effects of relocation” (10 U.S.C. 1056).

Despite financial incentives and other forms of relocation assistance, however, geographic relocation is still considered to be a cost of service. This stems from the involuntary nature of the assignment system and the fact that some service members inevitably relocate to locations that (1) they (or their families) do not like (Kleinman and Hansen, 2005); (2) reduce spousal employment opportunities (Cooke and Speirs, 2005); or (3) offer poor educational opportunities for children.

Geographic relocation is much more prevalent in the military than in civilian settings. Furthermore, most civilian relocations are voluntary. Very few civilians move because they are required to do so by their employer; even then, these relocations are not involuntary because civilians are not obligated to continue working for an employer in the same sense as are service members.

Defining Migration

We can use March CPS data to construct a definition of *migration* of civilian workers.¹ These data indicate whether an individual is living in the same house or apartment as the previous year. However, merely switching residences is a different type of move from that associated with active-duty service. For example, some individuals are not living in the same house as the previous year but indicate that they are living in the same county. Within-county moves are dissimilar from the type of geographic relocation that is common in the military.

Other individuals live in a different county from in the previous year but indicate that they are moving “to be closer to work” or for an “easier commute.” For the most part, these moves appear to be within a state (e.g., from one county in Massachusetts to another county in Massachusetts) or from one state to an adjacent state (e.g., from Mas-

¹ In the literature, geographic relocation is often referred to as *migration*.

sachusetts to Rhode Island). To maintain comparability with military relocation, we also do not consider this type of move to be migration.

Therefore, we consider individuals to migrate if they meet all the following criteria:

- They are not living in the same house as the previous year.
- They are not living in the same county as the previous year.
- They did not move for an easier commute.²

Geographic Relocation of Civilian Workers

In theory, location and relocation decisions depend on several factors, including the geographic area in which a civilian prefers to live and the types of jobs available at that location. Some civilians might have strong preferences for a geographic area and voluntarily accept lower wages to live in the preferred area. Other civilians might have stronger preferences for a desired level of income and voluntarily live in a less desirable geographic area in order to realize higher earnings.

According to March CPS data, about 11 percent of civilian workers moved in 2009–2010. However, many of these moves were within-county moves or for an easier commute. Using our definition of *migration*, we estimate that about 3.8 percent of civilian workers with a bachelor's degree (3.5 percent overall) migrated in 2009–2010. Table 6.1 lists, for those with bachelor's degrees who migrated, the main reason cited for moving.

Employment is the most common reason for geographic relocation among college-educated civilians: About 44 percent of those who migrated did so for work-related reasons. This implies that the overall number of individuals who migrated for work-related reasons is quite low, about 1.7 percent of the workforce (i.e., 44.0 percent of 3.8 percent). Civilians who migrate often do so for family- (21 percent of geographic relocations) or housing-related (19 percent) reasons.

Transfers are most comparable to the type of geographic relocation that service members routinely experience. Unfortunately, the

² This definition is consistent with the construction of labor-market areas to measure migration (Cooke and Speirs, 2005).

Table 6.1
Reasons for Geographic Relocation Among
College-Educated Civilians, 2009–2010

Reason	Civilians (%)
Work-related	44.0
New job or job transfer	36.1
To look for work or lost job	5.0
Other work-related reason	2.9
Family	20.9
To establish own household	6.3
Change in marital status	6.0
Other family reason	8.6
Housing	18.6
Want new/better housing	4.8
Want cheaper housing	4.2
Want to own home	4.4
Want better neighborhood/less crime	1.6
Other housing reason	3.6
Miscellaneous	16.4
To attend or leave college	8.2
Change of climate	1.2
Health reasons	0.7
Other reasons	6.2

SOURCE: Authors' tabulation of the March CPS.

CPS data do not distinguish between geographic relocations due to a “new job” and migration because of a “job transfer.” However, the data in Table 6.1 and the number of migrations suggest that the incidence of job transfer in civilian labor markets is very small. Even if all new-job or job-transfer relocations were job transfers, less than 2 per-

cent³ of civilian workers migrate for this reason. Furthermore, about nearly 65 percent of all geographic relocation occurs for reasons other than new job or job transfer. Therefore, we conclude that most civilian migration occurs for voluntary reasons.

Geographic Relocation of Service Members

In contrast, geographic relocation of service members is more prevalent. J. Hosek, Asch, et al. (2002) concludes that, between 1987 and 1999, about 40 percent of military families moved within a year. Our analysis of more-recent Army data suggests that about 39 percent of officers moved in 2007–2008. However, like those of civilian workers, many of these moves were within-county moves. Excluding these moves reveals that about one-fourth of Army families have “long moves” within a year. These moves are *all* made for work-related reasons and are comparable to job transfers in the private sector.

Although geographic relocation in the Army is more prevalent than in the private sector, it is not clear that officers have *unrealistic* expectations about these differences. Officers expect to migrate on a regular basis and have chosen to serve on active duty with the knowledge that they will be expected to relocate every few years. Furthermore, officers probably expect that civilian job transfers are less frequent than in the Army.

Spousal Employment

The literature concludes that, when families migrate, the spouse’s employment and earning opportunities generally decline (Shihadeh, 1991; Cooke and Speirs, 2005; Taylor, 2007). This deleterious effect is similar for both military and civilian families that relocate. The substantive difference between military and civilian families is the *extent* to which geographic relocation occurs.

J. Hosek, Asch, et al. (2002) examines differences in employment and earnings of civilian wives of service members and wives of civil-

³ $0.361 \times 3.8 = 1.37$.

ians. Civilian wives of service members are less likely to be employed than wives of civilians. Furthermore, compared with wives of civilians, employed civilian wives of service members

- are less likely to work full time
- work fewer weeks per year
- work slightly fewer hours per week
- have lower weekly and hourly wages.

Cooke and Speirs (2005) provides evidence that geographic relocation has substantive effects on spousal employment. For civilian wives of service members, this relocation results in a 10-percent decline in employment and, among those who remain employed, a decline in hours worked of four hours per week.⁴ Payne, Warner, and Little (1992) suggests that frequent relocation exacerbates this problem.

The civilian literature consistently finds that two-earner families are less likely than other families to migrate.⁵ According to March CPS data, 3.8 percent of college-educated civilian workers migrated in 2009–2010. However, only 2.7 percent of these married workers relocate, compared with 6.2 percent of nonmarried workers. In contrast, according to Army data, military families are neither more nor less likely than single service members to migrate.

Again, it is not clear that officers have *unrealistic* expectations about these differences. Officers expect to migrate on a regular basis and have chosen to serve on active duty with the knowledge that they will be expected to relocate every few years. Furthermore, officers probably expect that civilian job transfers are less frequent than in the Army. Despite these differences, officers with families have chosen to serve, implicitly accepting the potential deleterious effects on spousal employment as a condition of service.

⁴ Civilian husbands of service members suffer similar declines (Cooke and Speirs, 2005).

⁵ Nivalainen (2004) provides several citations supporting this view.

Deployments and Time Spent Away from Home

Service members spend a disproportionate amount of time away from home, due in part, but not solely, to deployment requirements. This is often presumed to have a deleterious impact on service member retention. However, both the theoretical and empirical evidence suggests that this presumption is not completely accurate.

J. Hosek and Totten (1998) develops a theoretical model of deployment and reenlistment that yields some important insights about this relationship. Theory suggests that service members *prefer* some amount of deployment. Individuals enlist with some expectations about various aspects of military service, one of which is a reasonable expectation that they will spend some time away from home and deployed. Furthermore, survey results indicate that many enlistees cite time away from home, travel, and duty to country as *reasons* they joined the military (J. Hosek and Totten, 1998). In other words, service members not only expect some deployment; many of them indicate that they would *prefer* it.

Of course, there can be limits to the amount of time away from home preferred by service members, and the actual experiences of service members while deployed might not align with prior expectations or preferences. Therefore, it is possible that repeated, long, or dangerous deployments reduce retention of service members.

It is also possible that civilian workers prefer some travel and time away from home as an aspect of their jobs. It is also possible that there are limits to the amount of time they would prefer to be away from home. To our knowledge, however, there has not been any analysis of civilian preferences for time away from home.

Time Spent Away from Home in Civilian Jobs

According to the 2001 National Household Travel Survey (U.S. Department of Transportation, 2005), only 4 percent of surveyed workers made *any* long-distance business trips during that year (authors'

tabulations of the data).⁶ Individuals in “professional, managerial, or technical” occupations were most likely to travel for work; still, only 5 percent of these workers made any long-distance business trips. At the other extreme, only 1 percent of clerical or administrative employees had any work-related travel.

Within these broad occupational categories, it is likely that the amount of travel varies from one occupation to the next. It also is likely that, even within an occupation, the amount of time spent away from home varies. However, there are no reliable estimates of the amount of travel required for specific civilian jobs.⁷

Time Spent Away from Home in the Military

The war on terrorism has had a significant effect on the amount of time that Army personnel spend away from home. For example, at the end of 2007, about 60 percent of first-term soldiers had been on a hostile deployment in the 12 months preceding their reenlistment decision. Seventy-five percent had done so in the 36 months preceding their decision (J. Hosek and Martorell, 2009). In contrast, before 9/11, about 15 percent had been deployed in the 12 months preceding their reenlistment decision, and 30 percent had been deployed in the 36 months preceding the decision.

J. Hosek and Totten (2002) examines the relationship between deployments and reenlistment in the late 1990s. Army reenlistment rates were higher for soldiers who had deployed than for those who had not deployed before making their reenlistment decisions. Reenlistment rates also increased as the number of nonhostile deployments increased. Similarly, Fricker (2002) finds that, during the late 1990s, separa-

⁶ The U.S. Department of Transportation administers the National Household Travel Survey. The survey was most recently conducted in 2009, but that round did not include information about long-distance trips. The most recent year for which data on long-distance trips have been collected is 2001. *Long-distance business trip* is defined as a trip of at least 50 miles or more for work-related business (excluding commuting to or from work).

⁷ BLS publishes the *Occupational Outlook Handbook* every two years as a career guidance resource, and it summarizes the work environment associated with hundreds of different occupations (BLS, 2010a). When applicable, the summaries describe the amount of travel required in these occupations, but these descriptions are very generic.

tion rates declined for both junior and midgrade Army officers as the number of nonhostile deployments increased. However, among junior officers with the same number of deployments, increasing amounts of hostile deployment were associated with higher separation rates.

J. Hosek and Martorell (2009) finds that, since the late 1990s, the relationship between deployments and Army reenlistment has been declining over time and has recently become negative. In other words, soldiers who deployed in the year prior to the expiration of their term of service have lower reenlistment than soldiers who did not deploy. Despite this finding, Army reenlistment rates have held steady over time, most likely in response to sizable increases in reenlistment bonuses and, more recently, changes in the economy.

As discussed earlier, work-related travel is much less common in civilian jobs than it is for service members on active duty. Furthermore, with the possible exception of civilian contractors in a combat zone, the nature of work-related travel can be very different for civilians and active-duty service members. Nevertheless, some civilian employers do require their employees to spend some time away from home.

Although time spent away from home in the Army is more prevalent than in the private sector, it is not clear that officers have *unrealistic* expectations about these differences. Officers expect to deploy on a regular basis, and they probably expect that civilians spend less time away from home than in the Army.

Summary

Geographic Relocation

Geographic relocation is much more prevalent in the military than in civilian settings. Furthermore, most civilian relocations are voluntary. Although employment is the most common reason for geographic relocation among civilians, only 1.7 percent of college-educated civilian workers migrate for work-related reasons in a year. At most, only 1.4 percent of college-educated civilian workers relocate because of job transfers.

Voluntary relocation improves the QoL of individuals who choose to relocate. In contrast, involuntary relocation results in some individuals moving to locations that they (or their families) do not like or that reduce spousal employment opportunities. Both of these factors suggest that officer QoL is lower due to geographic relocation.

It is not clear that officers have *unrealistic* expectations about these differences. Officers expect to migrate on a regular basis and have chosen to serve on active duty with the knowledge that they will be expected to relocate every few years. Furthermore, officers probably expect that civilian job transfers are less frequent than in the Army.

Spousal Employment

When families migrate, the spouse's employment and earning opportunities generally decline. This effect is similar for military and civilian families that relocate. The difference between military and civilian families is the *extent* to which geographic relocation occurs.

It is not clear that officers have *unrealistic* expectations about these differences. Despite these differences, officers with families have chosen to serve, implicitly accepting the deleterious effects on spousal employment as a condition of service.

Deployments and Time Spent Away from Home

Compared with civilians, officers spend a disproportionate amount of time away from home. Furthermore, the nature of work-related travel is very different for civilians and active-duty officers.

Officers not only expect some deployment; many of them indicate that they would *prefer* it. However, there can be limits to the amount of time away from home preferred by officers. The recent literature suggests that recent deployments could be having a deleterious effect on Army reenlistment.

Although time spent away from home in the Army is more prevalent than in the private sector, it is not clear that officers have *unrealistic* expectations about these differences. Officers expect to deploy on a regular basis and probably expect that civilians spend less time away from home than in the Army.

The Potential Impact on Retention

As we discussed in Chapter Three, retention depends, in part, on officers' *expectations* about civilian compensation. Unfortunately, we have very little information on expectations about civilian employment opportunities and no empirical evidence of officers' impressions of the socioeconomic differences between military and civilian employment. As a result, we are unable to provide precise estimates of the impact on retention of providing officers with a more complete picture of the socioeconomic environment that they face if they leave active-duty service.

However, as we discussed in Chapter Three, officers likely overestimate the ease of finding civilian employment that offers income comparable to what they receive while on active duty. If officers have overly optimistic expectations about civilian earnings, the most visible benefit of civilian employment, it is likely that they underestimate the additional costs of leaving active-duty service implied by the less visible socioeconomic differences between military and civilian employment. Therefore, it is likely that improving the accuracy of officer expectations will *lower* expected civilian compensation and *improve* officer retention.

In this chapter, then, we estimate the *potential* impact of communicating these socioeconomic differences to junior officers. It is important to emphasize that these estimates are only illustrative because we do not have reliable evidence of officers' current impressions. In addition, the results are based on *average* labor-market outcomes for college-educated workers and therefore might not be applicable to every officer

making the stay/leave decision. However, the estimates in this chapter give policymakers a sense of the relative importance of different socioeconomic characteristics. This will allow policymakers to set priorities for the socioeconomic differences on which leadership should place the most emphasis (i.e., those with the largest potential impact on retention) when counseling officers to remain in service.

Estimating Potential Impacts on Expected Compensation and Retention

To estimate the potential impact on retention of communicating the socioeconomic differences to officers, two additional pieces of information are necessary. The first is an estimate of the differences' potential impact on expectations about civilian compensation. Second, there is an existing literature that estimates the relationship between expected military and civilian compensation and retention. These estimates of the *pay elasticity of retention* are needed to link changes in officer expectations to potential changes in retention.

Many of the socioeconomic differences discussed in previous chapters can be directly described in terms of financial compensation. For example, unemployment reduces expected civilian compensation, and both the frequency and duration of unemployment spells translate directly into reduced earnings. For these socioeconomic differences, estimating the potential impact on retention is straightforward because we can provide quantitative estimates of the potential change. In addition, describing these differences in financial terms is a critical component of educating officers about the costs of civilian employment and helping to encourage them to remain in service.

Other factors are not easily described in financial terms, but we can describe their *qualitative* impact on the value of civilian employment and, by extension, on retention. For example, some civilians are underemployed, working jobs that do not fully utilize their skills and abilities but that provide them with a desired level of earnings. Although this type of underemployment does not result in lower civilian compensation, it does lower the value of civilian employment because individu-

als are not working in the types of jobs they would prefer. Describing these qualitative impacts is another necessary component of educating officers about the nonpecuniary costs of civilian employment and helping to encourage them to remain in service.

For each socioeconomic characteristic, we consider three scenarios that, for convenience, we label “optimistic,” “realistic,” and “cautiously optimistic.” The optimistic scenario is an environment in which officers are either completely unaware of the socioeconomic differences between military and civilian employment or presume that it will not affect them when they leave active duty; in other words, officers assume this cost of civilian employment to be zero. The realistic scenario is an environment in which officers have an accurate understanding of the additional costs of civilian employment and presume that, on average, these factors will affect them in the same way. The cautiously optimistic scenario is somewhere between the optimistic and realistic scenarios: Officers have some knowledge of the additional costs of civilian employment.

The difference in expected compensation between the optimistic and realistic scenarios is our estimate of the potential impact on expected compensation of communicating these socioeconomic differences to officers who know little about the costs of civilian labor markets or who have extremely optimistic expectations about their potential labor-market outcomes. The difference in expected compensation between the cautiously optimistic and realistic scenarios is our estimate of the potential impact on expected compensation of communicating these socioeconomic differences to officers who have some knowledge of the costs of civilian labor markets or who have somewhat optimistic expectations. Of course, there are other possibilities: Officers can move from being optimistic to cautiously optimistic, or anywhere along the continuum of expectations. The scenarios we present are intended to be illustrative, and, throughout the rest of this chapter, we refer to these estimates as the potential impacts on expected compensation.

It is important to note that we are assuming that, on average, junior officers have optimistic expectations about their civilian labor-market opportunities. This is consistent with the empirical evidence outlined at the beginning of Chapter Three. It is also consistent with

a phenomenon in the psychology literature known as *optimism bias*, in which individuals overestimate the probability of positive outcomes and underestimate the probability of negative outcomes (for examples, see Weinstein, 1980; McKenna, 1993; Armor and Taylor, 2002; and Lovallo and Kahneman, 2003). This does not mean there are no cases in which officers have overly pessimistic expectations about their civilian labor-market opportunities. Rather, our assumption implies that, on average, officers behave similarly to their civilian counterparts.

We regard these estimates as merely proxies for the actual changes in expected compensation because it is likely that some officers currently anticipate some of the additional costs of civilian employment, and there will always be some officers with inaccurate expectations. In addition, it is important to note that some officers might *realistically* expect to have better-than-average outcomes in the civilian labor market, if they have certain skills or experience that make them more appealing than average to civilian employers. Our estimates are meant to reflect the average potential effects.

Quantitative Estimates of Potential Changes in Expected Compensation

To illustrate the potential impact on expected compensation, we focus on male officers making stay/leave decisions after four years of service. In the context of the junior officers in whom the Army has made substantial investments, these examples resemble scenarios for ROTC scholarship graduates with a four-year ADSO. Focusing on officers with a five-year ADSO (e.g., USMA graduates) yields qualitatively similar results. Using our civilian data, we can predict expected civilian compensation for male veterans with a bachelor's degree or higher. We follow Warner and Pleeter (2001) and assume a discount rate of 20 percent when constructing expected earnings profiles over one's civilian career.

Unemployment

As we discussed in Chapter Four, the possibility of unemployment varies by several factors, including gender, race and ethnicity, education, age, geographic region, industry, and occupation. There is also a great deal of volatility in unemployment rates over time; the data suggest that unemployment rates are unpredictable, even from one month to the next.

Given this variability, we focus on long-run trends in the frequency and duration of unemployment spells for male college graduates. The data presented in Chapter Four imply that the average college graduate experiences a spell of unemployment about once every 6.5 years, with an average duration of 22 weeks. We estimate the expected civilian compensation under the realistic scenario, in which officers hold these expectations about the probability of unemployment, to be about 6.3 percent lower than in the optimistic scenario, in which they ignore the possibility of unemployment.¹

For the cautiously optimistic scenario, we assume that officers expect a spell of employment at approximately half the current average frequency (every 13 years), with an average duration of half the current average duration (11 weeks). Comparing expected compensation between the realistic and cautiously optimistic scenarios yields an expected compensation difference of 1.6 percent.

Involuntary Part-Time Employment

As we discussed in Chapter Four, some civilians originally worked full time but had their hours cut back by their employers due to unfavorable business conditions. Variability in involuntary part-time employment closely mirrors the volatility in unemployment rates. Given this variability, we focus on recent estimates of the extent to which civilians are involuntarily employed part time.

The data presented in Chapter Four imply that about 6.1 percent of full-time workers can expect to have their hours cut back. Further-

¹ Of course, unemployed individuals can also receive unemployment benefits, which increase expected civilian compensation and lower the gap between the optimistic and realistic scenarios.

more, as Nardone (1986) demonstrates, the number of hours worked by these underemployed individuals varies considerably. Therefore, we use the distribution of hours worked per week by the underemployed to construct expected hours per week for individuals who become involuntarily employed part time.

We estimate the expected civilian compensation under the realistic scenario, in which officers hold these expectations about the probability of underemployment, to be about 1.9 percent lower than in the optimistic scenario, in which they ignore the possibility of underemployment.

For the cautiously optimistic scenario, we assume that officers believe that their probability of underemployment is half the current average (3 percent). Comparing expected compensation between the realistic and cautiously optimistic scenarios yields an expected compensation difference of 0.9 percent.

Gender and Race Pay Differentials

Comparisons of wages earned by men and women, and of wages earned by white and black workers, in civilian jobs consistently show gaps between groups. If officers currently ignore the possibility of wage discrimination in the private sector, providing officers with information about this type of difference is expected to change the *mix* of officers who choose to remain on active duty, but not necessarily overall retention levels.

To illustrate this point, consider the racial and ethnic differences in expected civilian earnings.² Our estimates of expected civilian earnings are averages across all racial and ethnic groups. However, we estimate that college-educated black veterans earn 14 percent less than the average for all veterans; Hispanic veterans earn 8 percent less than the average. On the other hand, white veterans earn 2 percent more than the average for all veterans. Providing officers with information about this type of discrimination, then, would shift the mix of officers who choose to remain on active duty from white to black and Hispanic officers. Black and Hispanic officers would real-

² An analysis of gender differences yields the same qualitative conclusions.

ize that they can expect to earn less than the average veteran (thus improving retention of these officers), while white officers would realize that they can expect to earn more than the average veteran (thus reducing retention of these officers).

Therefore, better educating officers about wage discrimination in the private sector will not necessarily result in across-the-board improvements in retention. The groups that face discrimination in civilian labor markets might choose to remain on active duty in greater numbers; however, the Army could also see a reduction in the number of those not facing discrimination who choose to remain on active duty.³

Health-Care Benefits

As we discussed in Chapter Five, about 90 percent of college-educated civilian employees are offered health-care benefits by their or their spouses' employers. Civilians with dependents and employer-provided health-care benefits would have to spend about \$3,000 more per year to receive health care comparable to that provided to officers. Civilians with dependents but without employer-provided health-care benefits would have to spend about \$11,800 per year.

We estimate the expected civilian compensation under the realistic scenario, in which officers factor these costs into their estimates of expected earnings, to be about 7.3 percent lower than in the optimistic scenario, in which they ignore the cost of purchasing comparable health-care benefits.

For the cautiously optimistic scenario, we assume that officers believe that their probability of not working for an employer that offers a health-care plan is half the current average (5 percent). Comparing expected compensation between the realistic and cautiously optimistic scenarios yields an expected compensation difference of 6.4 percent.

³ Whether changes in the mix lead to changes in overall retention levels depends on the magnitude of the relative changes in expected civilian compensation; the proportion of officers in each gender, race, and ethnic category; and differences in the responsiveness to changes in compensation for these different groups.

Retirement Benefits

Finally, as we discussed in Chapter Five, the value of the military retirement benefit is much lower for junior officers than what they actually receive at the time they retire. We estimated that, if an officer with four years of service leaves active duty immediately, he or she would need only about \$2,200 more per year as a civilian to generate the same present value of earnings.

In this instance, we used the same estimates for the optimistic and cautiously optimistic scenarios because the issue is not a cost of the civilian labor market but rather a benefit of military service. If officers factor this differential into their estimates of expected earnings, we estimate that expected civilian compensation would be about 4.1 percent lower than if officers ignored the present value of military retirement pay.

Qualitative Estimates of Potential Changes in the Value of Civilian Employment

The other socioeconomic differences we identified are not easily described in financial terms. However, we can describe their qualitative impact on the value of civilian employment and, by extension, on retention. In this section, we briefly describe the likely qualitative impact of the following socioeconomic characteristics:

- occupational mismatch
- job instability
- QoL programs and conditions
- characteristics of military service.

As we discussed in Chapter Four, there are some individuals in civilian jobs that appear to require fewer educational qualifications than the worker possesses. Although some individuals prefer to work in these occupations, others prefer jobs that make better use of their skills. Unfortunately, it is difficult to identify which individuals in these jobs are involuntarily underemployed. We expect, however, that the risk of

occupational mismatch has a *negative* impact on the benefits of civilian employment. In some cases, occupational mismatch has *no effect* on actual compensation because some individuals choose to work in these occupations in order to realize a desired level of earnings. However, if individuals are not satisfied with the *type* of work they are doing in a civilian job, the value of civilian employment is lower. To the extent that occupational mismatch reduces the benefits of civilian employment, better educating officers about this risk is expected to improve officer retention.

Similarly, the relative instability of jobs held by new entrants into civilian labor markets suggests that officers who leave active duty might not find stable jobs early in their civilian careers. Job stability is generally desirable because more stable employer-employee relationships are associated with higher earnings. However, switching jobs can have a significant payoff for some workers who voluntarily transition from one employer to another. Therefore, it is difficult to assess the extent to which the relative instability of civilian jobs will affect expected civilian compensation. We expect that the risk of job instability has a *negative* impact on the benefits of civilian employment because the structure of military compensation allows officers to experience comparable wage growth without having to switch employers. To the extent that job instability reduces the benefits of civilian employment, better educating officers about this risk is expected to improve officer retention.

As we discussed in Chapter Five, a relatively small percentage of civilian workers have access to QoL programs. In contrast, officers have access to a wide variety of community and family support programs and MWR programs. This disparity suggests that the lack of QoL programs in the private sector reduces the benefits of civilian employment. However, although there is strong evidence that job satisfaction is tied to employee retention, there is no strong empirical evidence linking QoL program availability to job satisfaction. Furthermore, with a few notable exceptions, the QoL programs available to active-duty personnel are used by relatively few service members. Therefore, we are not certain whether the lack of QoL programs in the private sector substantively reduces the benefits of civilian employment to officers making stay/leave decisions or whether the impact is negligible.

Finally, Chapter Six identifies aspects of employment, such as relocation and travel, that affect officers more than their civilian counterparts. Although these factors are generally thought to reduce the value of military service, it is not clear that officers have *unrealistic* expectations about these differences between military and civilian employment. Junior officers are likely aware of the extent to which these factors affect them while on active duty, and they probably expect that these factors occur less frequently in the private sector than in the Army. Therefore, we expect that educating officers about these differences will not have much effect on the expected benefits of civilian employment.

Quantitative Estimates of Potential Impact on Retention

The previous sections provide quantitative and qualitative estimates of the potential impact on officer expectations about civilian compensation. Using these estimates, it is straightforward to estimate the potential impact on retention. There is an existing literature that estimates the relationship between expected military and civilian compensation and retention. Most of this literature examines this link for enlisted personnel;⁴ however, there are a few studies that focus on the responsiveness of officers to changes in expected compensation.

Table 7.1 provides a summary of the literature that addresses compensation and officer retention. These studies express the relationship between pay and retention in terms of a *pay elasticity*, which measures the percentage change in retention associated with a 1-percent change in expected compensation. The larger the estimated pay elasticity, the larger the predicted impact on retention of a change in compensation. For example, Mackin, Hogan, and Mairs (1993) reports a pay elasticity of 0.9 for Army infantry officers; this means that a 1-percent change in expected compensation is expected to result in a 0.9-percent change in retention of Army Infantry officers. Mackin,

⁴ For summaries of the literature and an indication of the relative emphasis on enlisted personnel, see Warner and Asch (1995) and J. Hosek, Warner, and Asch (2007).

Table 7.1
Estimates of Pay Elasticity of Officer Retention

Study	Service	Branch	Pay Elasticity
Gotz and McCall (1984)	Air Force	Pilots	0.7
Gotz and McCall (1984)	Air Force	Nonrated	1.4
Mackin, Hogan, and Mairs (1993)	Army	Infantry	0.9
Mackin, Hogan, and Mairs (1993)	Army	Signal corps	1.6
Hansen and Moskowitz (2006)	Navy	Pilots	0.6

Hogan, and Mairs (1993) also reports a pay elasticity of 1.6 for Army signal corps officers, which means that an identical, 1-percent change in expected compensation is expected to result in a larger (1.6-percent) change in retention of Army signal corps officers. The literature presents a range of estimates of the pay elasticity of officer retention, over time, service, and branch. As Table 7.1 shows, estimated pay elasticities range from a low of 0.6 to a high of 1.6.

The theoretical foundation of most officer retention models implies that a \$1 increase in expected military compensation should have the same impact as a \$1 decrease in expected civilian compensation (Hansen and Wenger, 2002a). If this is the case, we can combine the pay elasticity estimates from Table 7.1 with our estimates of the impact on expected civilian compensation to derive estimates of the potential impact on officer retention. For example, we estimated that better educating officers about the risk of unemployment could lower expected civilian compensation by about 6.3 percent. Table 7.1 implies that this would result in an increase in officer retention, anywhere from about 3.8 percent (with a pay elasticity of 0.6) to 10.2 percent (with a pay elasticity of 1.6). Estimates for other socioeconomic characteristics are derived in a similar fashion.

Table 7.2 summarizes our estimates of the potential impacts on expected civilian compensation and officer retention. As Table 7.2 shows, of the socioeconomic characteristics for which we have quantitative estimates of the potential impact on expected civilian compensation, health-care benefits appear to have the largest potential impact on

Table 7.2
Potential Impacts on Expected Civilian Compensation and Officer Retention

Socioeconomic Characteristic	Potential Impact (%)	
	Compensation	Retention
Optimistic versus realistic scenario		
Unemployment	-6.3	3.8-10.2
Involuntary part-time employment	-1.9	1.1-3.0
Occupational mismatch	Negative	Positive
Job instability	Negative	Positive
Gender and race pay differentials	Mixed	Mixed
Health-care benefits	-7.3	4.4-11.6
Retirement pay	-4.1	2.4-6.5
QoL programs and conditions	Negative/none	Positive/none
Characteristics of military service	None	None
Cautiously optimistic versus realistic scenario		
Unemployment	-1.6	1.0-2.5
Involuntary part-time employment	-0.9	0.6-1.5
Occupational mismatch	Negative	Positive
Job instability	Negative	Positive
Gender and race pay differentials	Mixed	Mixed
Health-care benefits	-6.4	3.9-10.3
Retirement pay	-4.1	2.4-6.5
QoL programs and conditions	Negative/none	Positive/none
Characteristics of military service	None	None

SOURCE: Authors' calculations based on the data outlined in Chapter Four through Chapter Six.

officer retention. We estimate that better educating officers about the availability and cost of health care in the private sector could improve officer retention by 4 to 12 percent.⁵ In contrast, involuntary part-time employment has a much smaller predicted impact on expected civilian compensation and, by extension, on officer retention. Better educating officers about the value of military retirement pay is expected to have an impact ranging from 2.5 to 6.5 percent.

Of course, the relative magnitudes in Table 7.2 depend on the plausibility of our assumptions used to generate these estimates. For some socioeconomic differences (e.g., the value of military retirement pay), it is likely that officers already have some understanding of the difference between military and civilian employment. If this is the case, the estimates in Table 7.2 overstate the impact on retention. For other socioeconomic differences (e.g., involuntary part-time employment), our estimates are more likely to be close to the actual impact on retention. In addition, it is important that some officers might be rightfully optimistic about their chances of avoiding unemployment or other negative outcomes in the civilian labor market, based on their skills or experience. We view our results as proxies for the average potential effects, rather than as applicable to individual officers making a stay/leave decision.

⁵ There is little difference between the optimistic and cautiously optimistic scenarios in this case because nearly all college-educated workers (90 percent) work for an employer that offers health insurance. Therefore, the major difference between the two scenarios (whether the service members assume they have a 100-percent or 95-percent chance of being offered health insurance) is small.

Communicating the Socioeconomic Differences to Officers

In the previous chapter, we provided estimates of the potential impact of communicating the socioeconomic differences between military and civilian employment to officers. As we have emphasized, the Army will not see any change in retention unless it is able to successfully shift officer expectations about the costs and benefits of civilian employment. Therefore, effective communication is a critical element in improving officer retention.

The financial education literature yields mixed evidence about the extent to which better educating individuals will lead to changes in behavior.¹ The literature also indicates that the effectiveness of financial literacy programs might depend on the target audience and on the methods used to disseminate information.² Overall, both strands of literature indicate that identifying appropriate channels through which

¹ For example, Bernheim and Garrett (2003) show that retirement savings and 401(k) participation rates are higher for respondents whose employers offer financial education. However, Duflo and Saez (2003, 2004) find that providing financial information boosted participation in pension plans but led to only a small increase in pension contributions. Several studies have also examined the impacts of high-school financial literacy education on household saving and investment, with varying results (see, among others, Mandell, 2008; and Cole and Shastry, 2009).

² For instance, Lusardi (2004) shows that retirement seminars increased financial net worth and that the effects were concentrated among relatively poor households. Bayer, Bernheim, and Scholz (2009) documents that employer-provided seminars are associated with increased participation in, and contributions to, voluntary saving plans but that written materials, such as newsletters, did not change saving behavior.

information can be disseminated is a critical element in ensuring effective communication.

In this chapter, then, we explore options for effectively communicating these socioeconomic differences to officers. This process involves two steps. First, one must develop a method for gathering the information that the Army wishes to disseminate, including a mechanism for updating this information if and when it changes. Second, one must identify the delivery mechanism for disseminating this information to officers.

Gathering and Updating Information for Dissemination

The information contained in this report is a first step in the gathering of information for dissemination to officers making stay/leave decisions. It is likely that the major socioeconomic differences between military and civilian employment will persist, and the general information provided here can serve as a framework for what will eventually be communicated to officers. However, as previous chapters have noted, the *magnitude* of these differences changes over time, and the costs and benefits of civilian employment vary with several factors. Therefore, if the Army is interested in providing up-to-date information that can be tailored to individual officers, it is necessary to develop a mechanism for gathering and updating this information.

One option is to rely on external groups to collect these data and to periodically (e.g., annually) retrieve this information from the external groups. Much of the data presented in this report is readily available from such groups as BLS (for characteristics of civilian labor markets) or the Henry J. Kaiser Family Foundation (for information on health-care benefits). These data are often published in press releases and reports and are available on these groups' websites.

However, there are two disadvantages to this passive approach to gathering and updating the information. First, the data in which the Army will be interested are not always easily found on these groups' websites, and annual updates to the relevant information are not stored on the websites in the same place as prior updates. Therefore, the Army

would need to invest resources in searching for and retrieving the information. Second, the data are not always tabulated or presented in a way that is completely amenable to the needs of the Army. For example, unemployment rates are calculated separately for veterans and nonveterans, but differences by officers and enlisted personnel or by service are not published by these groups. This limits the extent to which the data can be tailored to individual officers making stay/leave decisions.

An alternative would be to approach these groups and request that they (1) collect, analyze, and present the data in a way that is most useful to the Army and (2) disseminate this information on a periodic basis to the Army. This is not as onerous a burden as it might seem. The groups that currently collect and distribute these data are doing so in order to provide this information to interested parties. If they can be convinced that presenting the data in a different way would be of use, they might be willing to do so.

Furthermore, there is nothing inherently “Army” about the data presented in this report. The socioeconomic differences between military and civilian employment, and the extent to which they play a role in officers’ stay/leave decisions, are similar for all the services. If the Army were to coordinate with the other services and even with the Office of the Secretary of Defense (OSD) when approaching these groups, the likelihood that they would be willing to provide the Army with regular updates rises.

Disseminating Information to Officers

The social marketing³ literature has identified several ways in which information can be disseminated. In the context of the stay/leave decision, there are three relevant channels, or methods, to disseminate information to officers (Weinreich, 1999; Kotler, Roberto, and Lee, 2002):

³ Social marketing is “the use of marketing principles and techniques to influence a target audience to voluntarily . . . modify . . . behavior” (Kotler, Roberto, and Lee, 2002).

- interpersonal communications
- collateral materials
- the Internet.

Each of these channels has advantages and limitations; thus, the literature concludes that the most effective strategy is to use multiple channels (Weinreich, 1999).

Interpersonal Communications

Interpersonal, one-on-one communication is considered to be very effective, especially if the individual disseminating the information is considered to be credible (Weinreich, 1999). In principle, the primary advantages are that any officer questions can be answered immediately and that the information can be tailored to address the costs and benefits that are relevant to the individual officer's particular situation. However, there are also limitations. By definition, one-on-one communication does not address a mass audience, so it is a relatively costly way of disseminating information when the goal is to affect the behavior of a large number of officers. In addition, officers might be mistrustful of the individual disseminating the information and concerned that the information being provided is biased or incomplete. Finally, it might be necessary to provide incentives to the person who can most effectively influence officers making stay/leave decisions. If these individuals do not have the time or interest to be involved in others' retention decisions, the effectiveness of interpersonal communications is reduced.

For enlisted personnel, the Army has a natural candidate for initiating these interpersonal communications through its career counselors. Individuals in this MOS are trained in techniques and strategies for communicating with soldiers interested in reenlisting or extending their active-duty careers, and they are therefore well positioned to communicate the socioeconomic differences between military and civilian employment to these officers.

The fact that these counselors are already in place minimizes two of the potential limitations of interpersonal communications. First, because soldiers are already familiar with career counselors and their

role, the potential for additional mistrust is minimized. Second, the incentive structure is already in place for the selection of career counselors and for their involvement in the stay/leave decisions of other soldiers.

Army officers, however, do not have comparable career counselors available to them (Young et al., 2008). In an effort to rectify this situation, the Army is experimenting with a retention counseling training program through its Project STAY (Johnson et al., 2008). This program is intended to “train battalion and company commanders . . . to provide counseling that actively courts junior officers to stay” past their ADSO. In particular, Johnson et al. (2008) notes that one way to accomplish this is by “correcting misperceptions by presenting accurate information,” which would “yield more accurate junior officer perceptions of the organizational context.” This program could, in principle, effectively fill a void in the interpersonal communications with junior officers because research suggests that a junior officer’s first commanding officer plays an influential role in his or her stay/leave decisions (Johnson et al., 2008).

Collateral Materials

Collateral materials are written materials (e.g., brochures, data sheets, newsletters, press releases) created for distribution to a target audience. Their primary advantage is that they can convey detailed information, usually at low cost (Weinreich, 1999). The primary disadvantage is that the target audience must be sufficiently interested prior to seeing the collateral materials to pick them up and read them.

Because individuals must be interested in the material prior to receiving collateral materials, one strategy is to combine their use with interpersonal communications. In this context, collateral materials are an effective way to follow up the initial communication with more in-depth information or to reinforce the message being disseminated (Weinreich, 1999). Another strategy is to place collateral materials in locations where individuals are likely to read them.

For officers, there are several opportunities to provide collateral materials describing the socioeconomic differences between military and civilian employment. If career counselors were given these writ-

ten materials, they could disseminate the materials after conversations with officers about making stay/leave decisions. Furthermore, J. Hosek, Mattock, et al. (2005) identifies several possible ways in which these materials could be effectively disseminated. For example, officers receive annual notification of the value of all their benefits; this existing notification could be supplemented with additional information about the relative costs and benefits of military and civilian employment. Information about differences in health-care benefits could be placed in medical treatment facilities, while information about the relative generosity of MWR and other QoL programs could be placed in those facilities. J. Hosek, Mattock, et al. (2005) even suggests the possibility of providing “descriptive inserts with military paychecks,” although this would likely be more effective if only done occasionally.

The Internet

Finally, the Internet has changed the way in which many individuals receive and process information, and it offers an additional opportunity for the Army to effectively communicate the socioeconomic differences between military and civilian employment. The primary advantages of the Internet are its immediacy (i.e., individuals can access information at their convenience), interactive capabilities (i.e., individuals can focus on the specific information in which they have a particular interest), and its relatively low cost (Kotler, Roberto, and Lee, 2002). Furthermore, one can monitor the extent to which individuals are accessing information and the specific sources of information in which individuals appear to be interested, and it can provide a simple mechanism by which individuals can request more information.

Like other forms of social marketing, however, the Internet also has disadvantages. As true for collateral materials, the target audience must be sufficiently interested in the subject to access the information (here, on a website). Furthermore, despite growth in Internet usage within the population, not all individuals use the Internet to gather and process information. For this reason, it makes sense to use the Internet as *a* way, but not the only way, to disseminate information to officers.

Each of the services and OSD has developed a website as a way to disseminate information to both the public and to officers. For example, the Office of the Under Secretary of Defense for Personnel and Readiness (OUSD P&R) has developed a military compensation website (OUSD P&R, 2010) that allows individuals to access detailed information about the various components of military compensation, including

- pay and allowances
- health-care benefits
- retirement benefits
- QoL programs.

This website does not currently provide information about characteristics of civilian employment. However, if it were adapted to provide this information, officers would have the ability to access detailed information about both military and civilian employment, providing them with a way to assess the differences when making stay/leave decisions.

This particular website is not specifically *targeted* to individuals making stay/leave decisions but is intended as a general source of information for all interested individuals. In an effort to provide this resource directly to officers making stay/leave decisions, the Army is experimenting with a junior officer retention website through its Project STAY (Johnson et al., 2008). This website is intended to “address information gaps” and “help officers perform a realistic cost-benefit analysis regarding Army vs. civilian life/career” (Johnson et al., 2008). In principle, then, the website that is being developed has the potential to be specifically directed to the target population and well suited to providing access to the information that officers would need to evaluate the socioeconomic differences between military and civilian employment.

The Civilian Socioeconomic Environment Facing U.S. Military Academy and Reserve Officer Training Corps Scholarship Graduates

It is worth revisiting these findings in the context of the officers in whom the Army has made the largest investment. As we showed in Chapter Two, junior officer retention is lowest for USMA and ROTC scholarship graduates, and our analysis concludes that these are the officers in whom the Army has made the largest investment.

If the Army were able to successfully improve retention of these junior officers, it would help maximize the return on its investment in these individuals. Indeed, providing information on socioeconomic characteristics *before these individuals even receive their commission* has its advantages. This would allow the Army to get a head start on junior officer retention at a time when these individuals are in a controlled environment.

For these officers, the career counselor strategy is a promising option. By communicating with these individuals before graduation, it is possible for the Army to engage in interpersonal communications in a systematic way and in a structured environment. For ROTC cadets, the cadre is well suited to the task of communicating the relative costs of civilian employment because its responsibilities already include motivating, educating, and preparing cadets for service. Similarly, for USMA cadets, it is the West Point faculty's job to both counsel and mentor in preparation for service. Training these groups to effectively communicate the relative benefits of military service, and providing cadets with a framework to assess these factors as they approach stay/leave decision points, could be an effective step toward ultimately improving retention.

Conclusions

Army personnel management officials remain concerned that officers might not have a full and accurate picture of the socioeconomic environment that they face if they leave active-duty service. In this report, we developed a comprehensive picture of the socioeconomic environment officers will encounter if they leave active-duty service. Our analysis suggests that many socioeconomic characteristics do represent “costs” of civilian employment. Effectively communicating these characteristics to officers, then, will lower expected civilian compensation and, by extension, raise Army retention. We regard our estimates as a proxy for the actual change in expected retention because it is likely that some officers currently anticipate some of the additional costs of civilian employment, that there will always be some officers with inaccurate expectations, and that officers’ expectations and actual outcomes will also differ between individuals with different skills and experience.

Effective communication requires a method for gathering and updating the information that the Army wishes to disseminate and for identifying the delivery mechanism for disseminating this information to officers. This report describes several different options for gathering, updating, and reporting the information in a way that is both accessible and credible to officers making stay/leave decisions.

Given the need to strategically target USMA and ROTC scholarship graduates, providing information on the relative costs of civilian employment *before these individuals even receive their commission* would allow the Army to get a head start on junior officer retention. For ROTC cadets, the cadre is well suited to the task of communicat-

ing the relative costs of civilian employment; for USMA cadets, it is the West Point faculty's job to both counsel and mentor in preparation for service. Training these groups to effectively communicate the relative benefits of military service, and providing cadets with a framework to assess these factors as they approach stay/leave decision points, could be an effective way to ultimately improve retention.

However, as our analysis has showed, the lack of precise data about the civilian labor-market outcomes of junior officers remains an important gap in our knowledge of postservice transitions. Although general labor-market surveys, such as the CPS, do collect information about veterans, these surveys do not distinguish between former officers and enlisted personnel, and the number of veterans in the sample is fairly small. Closing this knowledge gap remains an important task for the Army if it wishes to better educate its officers.

One possibility is for the Army to ask all exiting officers about their current plans for entering the civilian labor force, including pending job offers. A more comprehensive step would be to survey former officers a year or two after they leave the Army and, if possible, to conduct follow-up surveys every few years. This type of longitudinal study would provide information not only about labor-market outcomes immediately upon leaving the Army, when many officers might have secured jobs before making the stay/leave decision, but also in later years, when they are more likely to have experienced some of the potential costs of the civilian labor market.

Are U.S. Military Academy and Reserve Officer Training Corps Scholarship Graduates Above Average?

As we discussed in Chapter Three, throughout this report, we present the *average* outcomes in civilian labor markets. However, it is possible that USMA and ROTC scholarship graduates have *better* employment outcomes than the average worker. If these officers are above average, data on average outcomes might not provide an accurate representation of what they can expect to encounter in civilian labor markets.

In this appendix, then, we present evidence that addresses these issues. First, we examine the empirical relationship between accession source and performance while on active duty. Second, we examine data on the relationship between college selectivity and civilian labor-market outcomes. Neither of these directly addresses the issue with which we are concerned. However, the data are suggestive of what these officers might expect to encounter in the civilian labor market.

Accession Source and Performance

Measuring Performance

Although direct, tangible measures of military performance are the most ideal, they are rarely used in the literature. Instead, the literature typically relies on indirect measures. Asch (2001) provides a rationale for using speed of promotion as a measure of service member performance. Specifically, Asch (2001) notes that quality is related to the “match” between employer and employee and that the speed of promotion “reveals quality by establishing criteria that apply to all members and by promoting faster those members who are soonest to meet and

surpass the criteria.” Buddin et al. (1992) concludes that faster promotion encourages high-quality, Army enlisted personnel, especially those in hard-to-fill occupations, to reenlist, effectively making promotion systems the primary policy tool for retaining high-quality personnel. Buddin et al. (1992) and Quester and Lee (2001) both note that, because promotion speeds vary by occupation, these measures should be calculated separately for each occupation.

Some researchers have identified limitations with using speed of promotion as a measure of performance. Kumazawa (2010) notes that this is a *relative* ranking, which could exaggerate trivial individual differences; it is possible that some officers exceed some minimum threshold and would be considered outstanding performers using an absolute rating. Furthermore, because experience is considered an important part of officer effectiveness, faster promotion might actually *hinder* junior officers’ development by affording them fewer opportunities to learn basic skills (Lewis, 2004).¹

In addition, in the context of Army officers, this measure of performance is the *outcome* of a promotion-board decision that an officer’s performance is relatively high to justify early promotion. This outcome reveals nothing about the actual *characteristics* of these officers that led to the promotion board’s decision or about their actual performance as officers. Therefore, several of these researchers have noted that this measure needs further validation before being considered a reliable measure of performance.

Correlations Between Accession Source and Performance

As Rostker et al. (1993) notes, DOPMA provides a standard for career progression for officers, as well as opportunities for early promotion. Although the majority of officers are promoted (or passed over for promotion) at the same time in their careers, a small number are promoted earlier than their peers. According to Rostker et al. (1993), these officers “have demonstrated outstanding potential” and are referred to as

¹ Similarly, interviews with Navy flag officers suggest that early initial promotions can hurt officers’ subsequent promotion opportunities by putting them in positions for which they are unprepared (Schwind and Laurence, 2006).

below-the-zone (BZ) promotions. Although this language refers to an officer's *potential* to perform at a higher pay grade, the decision to promote an officer early is based, in large part, on an officer's actual performance to date. It is, however, likely that BZ promotions are awarded to alleviate current or anticipated manning challenges at higher pay grades.

Nevertheless, within a branch and at a given rank, we expect that individuals who are promoted early are considered to be higher performers than those who are not. Therefore, we use BZ promotion both to major (the O-4 pay grade) and to lieutenant colonel (the O-5 pay grade) as measures of performance. Unfortunately, these measures of performance do not allow us to measure performance earlier in an officer's career, nor do they reveal the specific characteristics about these officers that led them to be considered high performing.

To assess the interrelationships between accession source, BZ promotion to major, and BZ promotion to lieutenant colonel, we use logistic regression. Specifically, we model the probability that an individual is promoted below the zone. For BZ promotion to major, we use controls for fiscal year, pay grade, years of commissioned service, and branch, in addition to measures of accession source and higher civilian education.² For BZ promotion to lieutenant colonel, we use all these controls, but we also include our measure of BZ promotion to major.³

Table A.1 summarizes our estimates of these interrelationships. We find that accession source is correlated with BZ promotion to major. As Table A.1 shows, we predict that 11.7 percent of USMA graduates at pay grades O-4 and above are promoted below the zone to major. Holding all other factors constant, 8.8 percent of ROTC scholarship graduates and 5.7 percent of ROTC nonscholarship graduates are promoted below the zone to major. In general, this pattern is consistent with the hypothesis that accession source is correlated with

² When modeling the probability that an individual is promoted below the zone to major, we also restrict our sample to officers at pay grades O-4 and above.

³ When modeling the probability that an individual is promoted below the zone to lieutenant colonel, we also restrict our sample to officers at pay grades O-5 and above.

Table A.1
Predicted Probability of Below-the-Zone
Promotion, by Accession Source

Officer Characteristic	Predicted Probability
BZ promotion to major: accession source	
USMA	0.117
ROTC scholarship	0.088 ^a
ROTC nonscholarship	0.057 ^{a,b}
OCS	0.078 ^a
BZ promotion to lieutenant colonel: accession source	
USMA	0.088
ROTC scholarship	0.105 ^a
ROTC nonscholarship	0.083 ^b
OCS	0.090
BZ promotion to lieutenant colonel: promotion to major	
BZ promotion	0.272
Other officers	0.061 ^c

^a Statistically different from predicted probability for USMA graduates.

^b Statistically different from predicted probability for ROTC scholarship graduates.

^c Statistically different from predicted probability for BZ promotions to major.

officer performance.⁴ However, higher BZ promotion rates for USMA and ROTC scholarship graduates could also reflect raters' or promotion boards' *subjective* opinion that such a relationship exists (i.e., that individuals from these accession sources are high performers, irrespective of whether they actually *are* higher performers). Furthermore, we note that there are BZ promotions from each accession source.

⁴ OCS graduates are also less likely than USMA graduates to be promoted below the zone.

The relationships between accession source and BZ promotion to lieutenant colonel are not as clear. Although ROTC scholarship graduates are significantly more likely than nonscholarship graduates to be promoted below the zone, the predicted probability for USMA graduates is actually *lower* than that for ROTC scholarship graduates and statistically indistinguishable from that for nonscholarship and OCS graduates.

As Table A.1 shows, whether one also received a BZ promotion to major is strongly correlated with BZ promotion to lieutenant colonel. We predict that about 27 percent of individuals promoted below the zone to major also are promoted below the zone to lieutenant colonel; for officers who were not promoted below the zone to major, the predicted probability is much lower, at about 6 percent. However, we note that BZ promotion rates to lieutenant colonel are well below 100 percent for those promoted below the zone to major and are above 0 percent for those who were not. In other words, although BZ promotions are highly correlated, BZ promotion to major is certainly not a guarantee that one will continue to receive an early promotion.

In summary, our analysis suggests that accession source is correlated with one measure of performance (BZ promotion to major) but not with another (BZ promotion to lieutenant colonel). In some respects, this is not surprising. Accession source is a measure of officer *potential*. As officers spend more time on active duty, their actual performance is observed and promotion decisions are based more on tangible evidence than on measures of potential.

Baccalaureate and Beyond

Although the evidence is mixed for officers who remain on active duty, it could still be the case that USMA and ROTC scholarship graduates who *leave* active duty are above average. Unfortunately, the data do not allow us to directly test whether this is true. However, we draw on the B&B survey to examine labor-market outcomes for college graduates by the selectivity of their undergraduate institutions. This survey draws its cohorts from a nationally representative sample of postsecondary

students based on the National Postsecondary Student Aid Study. We examine various outcomes for the initial cohort of students, who graduated from college in 1993 and were surveyed in 1993, 1994, 1997, and 2003. The outcomes described in this section are based on the respondents who were surveyed in all four rounds, and the panel sampling weights provided by the survey are used.

We compare several employment outcomes for students who graduated from colleges of differing selectivity levels. The institutions are divided into five groups based on the percentage of students admitted and the SAT[®] exam and ACT[®] scores reported by the institutions.⁵ Table A.2 shows the percentage of respondents who reported being unemployed in 2003, as well as the percentage who reported ever having been unemployed between receiving their bachelor's degree and 2003, by the selectivity of their undergraduate institution. As Table A.2 indicates, there is no clear correlation between these measures of unemployment and college selectivity. Although the data are not shown, we also examined data on the total number of unemploy-

Table A.2
Percentage of Unemployed Baccalaureate and Beyond Survey Respondents, 2003

Selectivity of Institution	Unemployment Rate, 2003	Ever Unemployed, from Bachelor's Degree Through 2003
Overall	3.8	46.1
Most selective	4.3	51.1
Very selective	3.3	48.5
Moderately selective	3.9	44.2
Minimally selective	3.0	49.6
Open admission	4.9	45.1

SOURCE: Tabulation based on National Center for Education Statistics (2004).

⁵ SAT is a registered trademark of the College Board, which was not involved in the production of, and does not endorse, this report.

ment spells and the longest unemployment spell and found no clear correlations between these measures and selectivity.

These findings suggest that, although there might be some selection in employment outcomes for high-potential officers, including USMA and ROTC scholarship graduates, using the average labor-market outcomes for college-educated employees might be reasonably representative for these groups of officers.

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