**Does a Criminal Past Predict Worker Performance? Evidence from America's Largest Employer**

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*"...the Army does no systematic tracking of recruits with waivers [for criminal records] once it signs them up, and it does not always pay enough attention to any adjustment problems. Without adequate monitoring and counseling, handing out guns to people who have already committed crimes poses a danger to the other individuals they serve with and to the innocent civilians they are supposed to protect."* NYTimes editorial 2007

*"As many as 572,000 non-fatal crimes occurred in the American workplace in a single year. These figures are staggering considering a majority of the victims whose assailants were other employees and acquaintances. Yet, in many of these cases, the violence could have been prevented simply by conducting background checks to determine if any potential new hires had criminal records or other factors that would create a dangerous work environment."* The Recruiting Division 2013

The assumption that a criminal record signals danger or other undesirable characteristics is widespread, and guides the hiring behavior of many U.S. employers. More than 70 percent of businesses conduct background checks (SHRM 2012) and the majority report that they would be unwilling to hire an individual convicted of a serious criminal offense (Holzer et al. 2004). Employers report concerns over violence and theft in the workplace, as well as more generalized concerns over ex-offenders lacking oral character, work ethic, ability or some combination thereof (Holzer 1999; Pager 2007). At the same time, we know that the vast majority of individuals who commit crimes desist in the transition to adulthood (Hirshi & Gottfredson 1983), with employment itself playing an important role in this transition (Uggen 2000; Sampson & Laub, 1993). How, then, should we think about the prospects of ex-offenders in the workplace? Is the widespread aversion to hiring ex-offenders warranted or a self-fulfilling prophesy? Unfortunately, virtually no empirical evidence exists with which to assess the workplace risk or potential of individuals with criminal records, leaving these debates largely theoretical. Reports of workplace violence, while provocative,

rarely indicate a perpetrator's criminal background; and few workplaces track the performance of employees with criminal records.

Meanwhile, a little known initiative has been operating in the U.S. military, which regularly recruits and hires individuals with felony-level criminal records to serve in the armed forces. With appropriate adjustments, this program presents a compelling test case to understand ex-offenders' work performance when they are given a reprieve to enter a workplace, in this case America's largest employer.[1]

This paper represents one of the first efforts to provide a systematic evaluation of ex-offenders in the workplace. Using original data assembled from military administrative records, we follow 1.3 million ex-offender and non-offender enlistees who enlisted during the period 2002-2009.  We find that individuals who have been arrested for felony-level offenses have similar attrition rates to those with no criminal record. They are no more likely to be discharged for the negative reasons employers often assume (such as misconduct or poor work performance).  In fact, the only cause of abbreviated service that appears to differ for those with and without serious criminal records is a higher rate of death in the course of service observed among our sample members with criminal records. Finally, contrary to what might be expected, we find that individuals with felony-level criminal backgrounds are promoted more quickly and to higher ranks than other enlistees. We conclude that the military's criminal waiver process holds promise for the civilian sector, showing that proper screening can result in success to the mutual benefit of employers and individuals with criminal histories.

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[1]  There are roughly 1.4 million active duty personnel in the U.S. military (see Wikipedia 2016). For comparison, Walmart, America's largest civilian employer, has roughly 1.3 million workers in the United States (see Hess 2013).

**BACKGROUND**

*The Expansion of the Criminal Justice System and its Implications for Employment*

The expansion of the criminal justice system in the United States is by now familiar to scholars, with dramatic increases in the use of policing, community corrections, and incarceration over the past four decades (NRC, 2014). As a result, it is estimated that roughly 8 percent of the working age population now has a felony conviction and roughly 92 million Americans have some form of criminal record (Love, 2011). The rapid expansion of the criminal justice system and the marked increase of job seekers with criminal pasts have important repercussions for the American labor market. Former felons are barred from a variety of occupations in childcare, healthcare, banks, insurance and security fields, with the number of licensure restrictions increasing significantly since 1970 (Love et al. 2012). Criminal arrest and conviction records have become increasingly easy for employers to access via online repositories, and it is correspondingly commonplace for employers to require applicants to report their criminal histories and to undergo background checks (SEARCH 2005).

Perhaps not surprisingly, the rate of employment among ex-offenders is extremely low. Studies of ex-prisoner populations report that roughly half remain jobless up to a year after release from prison (Sabol 2007; Visher et al. 2001; Petersilia 2003). Likewise, general population panel studies find a strong negative association between the experience of incarceration and subsequent employment rates (Freeman 1992; Western 2006; Apel & Sweeten 2010) and earnings (Western 2006; Pettit and Lyons 2007). Given the size of the ex-offender population, these patterns suggest troubling implications for aggregate patterns of joblessness and economic insecurity (Pettit & Western, 2005).

Much of the scholarship on the employment of ex-offenders has focused on the barriers that result from a criminal record, particularly those with felonies. Employers demonstrate a strong reluctance to consider applicants with criminal records (Holzer et al. 2004) and matched pair audit studies suggest that ex-offenders are roughly half as likely to receive a callback or job offer relative to equally qualified applicants with no criminal record (Pager 2003). These barriers pose concern in that they hinder the reentry process and make it more difficult for those with criminal pasts to move on to stable, productive lives. Research points to employment as one of the strongest predictors of desistance from crime (OPRE 2012; Uggen 2000). If employers are unwilling to hire ex-offenders, however, this critical pathway remains largely out of reach.

At the same time, employers may have good reason to avoid hiring those with criminal pasts. Many of the characteristics that lead to criminal justice involvement in the first place -- criminal activity, drug and alcohol addiction, mental health problems, disadvantaged background, and lack of human and cultural capital– may also make ex-offenders poor prospects for stable employment (Grogger 1995; Bureau of Justice Statistics, 2001). Each of these characteristics is arguably related to worker quality, and in some cases may be difficult to observe directly. Moreover, to the extent that the past is a strong predictor of the future, a criminal past conveys some information about the likelihood of future illegal or dangerous forms of behavior. Such behavior is of concern both for the immediate risks it poses for the workplace, as well as the possible legal liability employers may face as a result of "negligent hiring" laws (Leavitt 2001).[2] Employers thus have reason to be concerned about hiring ex-offenders.

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[2] The legal precedent established under "negligent hiring laws" explicitly states that employers must demonstrate "reasonable care" in the selection of employees or else the employer may be held liable for acts of violence or loss of property caused by an employee against a customer or fellow employee (see Leavitt 2001).

To what extent are employers' concerns about ex-offender behavior borne out? Unfortunately, we have no direct evidence with which to answer this question directly. At the same time, we do know something about the risks of future offending more generally. For example, the number and severity of the prior offenses shows a strong relationship with the likelihood of reoffense (Barnes and Hyatt 2012). Beyond these fixed characteristics, many of the relevant risk factors vary with time and context. For example, the risk of recidivism falls steadily with time since arrest, with nearly 60% of recidivism occurring within the first year (Bureau of Justice Statistics, 2013). Over time, those with a prior arrest start to appear virtually indistinguishable from the general population in the chances of a subsequent offense (Kurlychek et al. 2006; Blumstein & Nakamura 2009). Additional evidence suggests that this recidivism curve may be substantially reduced through employment. A randomized evaluation of a transitional jobs program in New York City found that those who started working within three months of release from prison were roughly 22% less likely to be convicted of a new crime within three years of release than those in the control group (OPRE 2012). Likewise, a randomized evaluation of a national jobs program found that, among those over age 26, assignment to low wage employment post-release reduced the risk of rearrest by 22% (Uggen 2000). Thus, the predictive value of a criminal record is heavily influenced by contextual factors such as age, time since offense, and intervening work experience.

Reflecting these complexities, the Equal Employment Opportunity Commission issued new guidelines in 2012 proscribing hiring policies that categorically ban applicants with arrest or conviction records (EEOC 2012). Instead, the commission directs employers to consider factors such as time elapsed since the offense, evidence of rehabilitation, and the relationship between the crime and job in question, in order to offer a case-by-case assessment as to whether a given criminal record is relevant.

Can such a review process effectively account for employers' concerns about hiring ex-offenders? Unfortunately, there is very little direct evidence with which to evaluate how ex-offenders fare in the workplace, with or without extensive screening. No existing study has followed individuals with criminal records into the workplace to assess their performance or rates of misconduct. Our research offers among the first available evidence with which to evaluate this question, using the military context as a compelling case study.

**Prison-Military Linkage**

While representing highly distinct arms of the state, the military and the criminal justice system have enjoyed an important and long-standing association. Part of this association is reflected in the popular assumption that militaristic discipline will set delinquent youth on the right path, as embodied by the militaristic structures of many programs and schools for juvenile delinquents. During World War II, judges often ordered criminals to military service as an alternative to trial or prison (Shattuck 1945; Mattick 1954). And a number of studies have, in fact, found some desistance effect of military service for criminal delinquents who joined the military during the Vietnam, Korean War and WWII eras (Bouffard and Laub 2004; Sampson and Laub 1995).

Today offenders are rarely sent to the military for reasons of punishment or rehabilitation. But the ties between criminal justice and military institutions remain important. According to the U.S. federal legal code (10 U.S.C. 504), individuals convicted of a felony may not enlist in any branch of the military. However, exceptions may be made by the military through the issuance of "moral character waivers." A waiver approval is required of military recruits if they have a history of misconduct[3] including, at the extreme, a conviction or other adverse adjudication of either a single

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[3] We focus only on criminal offenses, but most conduct-related waivers in the military are granted for lower order forms of misconduct, such as multiple traffic violations, disorderly conduct or vandalism, self-disclosed admission of drug or alcohol addiction or testing positive for drugs or alcohol at the recruitment physical exam.

major misconduct offense (felonies such as murder, burglary, etc. but excluding illegal drug trafficking) or a certain number of minor misconduct offenses (misdemeanors ranging from DUIs to marijuana possession). We refer to these two waiver types as "felony waivers" and "misdemeanor waivers," respectively. Waivers are especially prevalent when the supply of enlistees is low, such as during wartime and when the national economy is thriving. To illustrate, criminal waivers doubled during the height of the wars in Iraq and Afghanistan compared to the late-nineties, a peacetime era of economic expansion  (Boucai 2007).

Our study examines what happens when the typical barriers facing ex-offenders in the labor market are reduced. How does the attrition and performance of those with felony-level criminal records compare to recruits with no reported criminal history?  In investigating this question, it is important to keep in mind that conduct waiver enlistees are not a random draw from the ex-offender population. Like most civilian employers, the military screens carefully on educational background and applicant skills. Specifically, the military typically requires a high school degree or equivalent and average scores on the Armed Forces Qualifying Exam (AFQT).  In addition, when considering individuals for conduct waivers, the military conducts what is referred to as a "whole person" evaluation. This screening process takes into consideration the age at offense, the circumstances and severity of offense, the recruit's qualifications, references, as well as a personal interview. Scrutiny is much greater the more serious the offense, with  felony offenses requiring approval by the highest level of authority on the recruiting command.  The whole person approach bears striking similarity to the guidelines recently established by the EEOC for civilian employers, as discussed above. Our analyses thus allow us to explore whether, given a careful screening process, individuals with criminal records perform similarly to their counterparts with no criminal history.

As the largest employer in the United States, the military represents an important case study for broader labor market dynamics. Recent research looks to the military workforce as a prototype to analyze the performance of GED holders relative to high school dropouts and degree holders (Heckman et al. 2014, ch.6) and prior studies note the importance of military service in better understanding employment patterns in the civilian labor market (e.g., Mare & Winship 1984). Given its large and diverse workforce, the military offers many opportunities to explore employment dynamics that generalize to the broader labor market.

At the same time, the military does exhibit key features that distinguish it from typical civilian employers. In particular, the military represents a highly structured environment in which enlistees both live and work. For the purposes of our study, this difference could influence our findings in potentially divergent ways. On the one hand, ex-offenders may have less opportunity to reoffend in such an environment. Studies have shown a "knifing off" effect of military enlistment, where individuals are removed from negative pre-existing peer group influences (Laub and Sampson 2001). To the extent that the military service ethos emphasizes discipline, responsibility, and self-efficacy, the environment may also mitigate against reoffense. On the other hand, the greater surveillance of military service may expose the recruit to more intense behavioral scrutiny, while also exacerbating any pre-existing tendency of resistance to authority. Furthermore, the stress of war deployment and separation from one's family and community may exacerbate negative impulses. It is thus unclear whether the military represents a conservative or liberal test of the performance of individuals with criminal records. In either case, it represents an undeniably central component of the American labor market. And thanks to the military's careful record keeping, we have an opportunity to systematically assess the relationship between criminal records and worker performance for among the first such evidence of its kind.

Although the waiver program is not widely known to either the public or to scholars, the DoD has a keen interest in each of its waiver programs and their success. Waiver programs enable the military to be flexible in response to the changing labor market and recruitment pool, allowing leeway in recruiting individuals who would normally be ineligible to serve in poor recruitment climates. Recruiting and employing individuals with criminal conduct waivers is also a cost-savings because the recruiter has fewer civilian opportunities against which to compete. Still, it is a costly investment to recruit and train any service personnel, and so the military has a vested interest in recruiting individuals who will serve out their full contracts. As potentially high-risk hires, the trajectory of individuals with conduct waivers of any kind has been subject to examination by the DoD (contrary to the belief highlighted in the first introductory quote). A number of military reports and unpublished theses from military service academies have examined the program with the aim of assessing whether waivers (drug, health, conduct, etc.) should remain a military policy. The goals of these reports and theses differ from the goals of our paper; they are focused primarily on how the different waiver programs impact manpower effectiveness, readiness, and troop morale in the military. Nevertheless, these internal documents are instrumental in informing our study and helping to familiarize us with data that has never been publicly available to scholars. We briefly summarize relevant findings from existing internal documents as follows.

Evidence from unpublished DoD studies for the success of conduct waiver recruits is mixed. Most analyze first term attrition (also referred to as "early separation"), defined as failure to complete the initial contract period of a recruit. This is a widely used metric in the services to measure the investment pay off of an incoming cohort. An analysis by the U.S. General Accounting Office found no difference between first term attrition rates and reasons between standard recruits and those with conduct waivers (GAO 1999). A Navy study of first-term disciplinary problems also

found no difference between these two groups (Noble 2005). But a thesis examining the likelihood of attrition among conduct waivers in the Marines from 1997 to 2005 found that felony waivers were 17% more likely than non-waivers to separate from the military for unsuitability reasons (Jeppe 2008). Another thesis focusing on sailors joining the Navy in two different locations found that those with waivers (conduct and drug combined) were more likely to terminate before the end of their first contract (Huth 2007). Another study found conduct waiver status to be a minor predictor of attrition, but only for the Navy and the Marines, not for the Army or Air Force (Wenger and Hodari 2004). In an analysis of Army recruits from 2000-2005, a thesis found that those with waivers for criminal records were more likely than other recruits to terminate early, though significantly less so than non-high school diploma holders (Sahin and Ayhan 2009).

In a 2008 congressional hearing, references are made to a number of unavailable reports that indicate positive effects for conduct waivers in the Army (cite). While analyses of all conduct waivers showed they were more likely to terminate early, when limited to felony waivers, there were no differences from enlistees without waivers. Furthermore, Army conduct waiver enlistees re-enlisted at higher rates, had a higher incidence of awards, and in one subsample of enlistees in a specific occupation (infantry), conduct waiver enlistees showed faster promotion rates. There is a single published study assessing the performance of recruits who enter with waivers (Malone 2014). The larger focus of this paper is the success of incoming recruits with any kind of waiver, including conduct waivers. The paper focuses on each military branch separately and evaluates both first-term attrition and promotion rates. It finds evidence for lower first-term attrition rates for felony and misdemeanor conduct waiver recruits within all military branches, although the overall effects are small in magnitude. The analysis finds more variation across branch for promotion rates. In the Army and Marines conduct waivers with felony backgrounds are promoted faster. Conduct waivers

with misdemeanors also get promoted faster in the Army and in the Navy. The only negative promotion rates found are those for Air Force misdemeanor waivers. The Malone (2014) paper takes an important step forward in publishing this important data. We build on this work by examining a broader sample over a more recent time period. We focus specifically on the question of felony offenses, examining the reasons behind attrition rates and we utilize alternative promotion measures.

The existing research provides a strong starting point for understanding the performance of those with waivers for past misconduct in the military. Given that our interest extends beyond military service, however, we seek to build on this research in several important ways. First, in many of the existing studies, early termination is used as the key outcome variable, with little attention to specific causes of attrition. As we show below, the causes of early termination can vary quite substantially-- from misconduct and poor performance, to health problems, to death --with important implications for assessments of suitability for service (and other forms of employment). Second, in addition to examining attrition and its causes, we examine pace and level of promotion through the ranks, which provides a longer-term and more holistic perspective on career success than most of the existing thesis studies. Finally, the majority of existing research was conducted prior to the rapid escalation in use of conduct waivers associated with recent large-scale deployments in Iraq and Afghanistan. Relying on more recent data offers the opportunity to observe how individuals with criminal records fare when the standards are relaxed to allow higher rates of participation. Together, these findings have important implications for understanding the prospects for ex-offender employment in the broader labor market, where the issue of ex-offender employment has become a significant cause for concern.

In the following analysis, we examine the performance of individuals with felony waivers relative to their non-waiver peers. Concerns about negative attributes of ex-offenders correspond to the prediction that individuals who receive felony waivers will be unsuccessful in the structured workplace setting of the armed forces. But if employers' concerns are exaggerated or unwarranted, or if effective screening can adequately select those ready for work, individuals given this second chance may perform similarly to their non-offender counterparts.

**DATA and VARIABLE CONSTRUCTION**

In the spring of 2013, we filed a Freedom of Information Act (FOIA) request to obtain complete population data for all new active duty enlistments in calendar years 2002 through 2009.[4] Roughly 18 months later, the Department of Defense (DoD), Defense Manpower Data Center (DMDC) supplied our requested data in three separate text files with three data dictionaries describing the location and coding scheme for each of the variables that we received. All three data files were anonymized by the DoD using a 9-digit unique identifier created for our FOIA case. The first text file contained demographic and enlisted-related information for the total sample of 1,330,759 active duty individuals. The second file contained 4,010,861 records of related promotion data for each sample member and the third file contained 643,763 of any related separation records, each in long format. Upon converting to wide data format in STATA, we merged the three files using the 9-digit identifier. We cleaned the data by first removing those with duplicate IDs, and then by excluding those with pre-enlistment year promotion or separation records to prevent the inclusion of

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[4] Ref: 13-F-0580. We requested a total of 29 variables. Our request for data on offense description codes, total number of waivers, outcomes of basic training and Advanced Individual Training (AIT), contract length at signup, and specific achievements or honors was not met.

individuals who re-enlisted after a break in service.[5] We further restricted our sample by removing those who lacked pay grade information at time of enlistment. This resulted in a loss of roughly 4% of the total enlistment records provided by the DoD, reducing the N to 1,275,281.

Our main independent variable of interest, enlistment waiver type, was predefined by the DoD based on a 3-digit waiver category code, which reflects the 2008 DoD-wide waiver standardization guidelines. There are four types of enlistment waivers - conduct, dependent, drug, and medical.[6] Individuals who entered with any waiver comprise about 6% of the valid sample. Using the 3-digit waiver category code, we pulled out those with conduct waivers who could be separated into major misconduct and minor misconduct waivers. Major misconduct refers to offense types for which the maximum period of confinement under local law is one year or more (similar to the definition of a felony-level offense); minor misconduct refers to offense types for which confinement exceeds four months but less than a year (similar to the definition for a misdemeanor offense). We refer to these as felony waivers and misdemeanor waivers, respectively. Because DoD did not supply offense description codes, we do not know the detailed circumstances behind each waiver category code. However, conduct waivers are required for offense histories that include arrest, conviction, and/or incarceration.[7]

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[5] We treat immediate reenlistment as having no break in service.

[6] Dependent waivers can be granted to qualifying individuals who ordinarily would not be able to enlist due to family structure dependency, such as having a high number of young children, both parents being enlisted with young children, etc. Health waivers are granted for individuals who do not meet the physical standards due to overweight, a medical condition, etc. Drug waivers can be granted to individuals who test positive for alcohol or drugs upon processing at a Military Entrance Station or who self-disclose addiction. Although Military Entrance Processing Command (MEPCOM) may report a maximum of three enlistment waivers, our FOIA data based on the Defense Manpower Data Center (DMDC) enlistment file, which contains at most one enlistment waiver per enlistee. Therefore, waivers are mutually exclusive in our data. For example, any given felony-level waiver may also have misdemeanor offenses as well.

[7] Before 2008, the Marines and the Navy allowed consideration of major conduct waivers for individuals with more than one felony offense; in 2008, all military branches moved to a policy of automatic disqualification from waiver consideration for those with more than one felony. (But in practice, the whole person criteria, which considers severity and type crime, screened many of those with multiple felonies out even when they are not automatically disqualified). Misdemeanor waiver policy also varied by branch before 2008. Previously, automatic rejection for misdemeanor waiver

Our control variables cover demographic and educational backgrounds of enlistees, as well as, branch of service, and contextual variables based on enlistment years. Race, ethnicity, gender, citizenship, and education level all follow DoD definitions, but we simplified race, ethnicity, citizenship, and education level for the purpose of our study. For example, DoD changed the race coding scheme in 2003 to consider different combinations of mixed raced individuals. In order to increase comparability between 2002 and post-2003 data, we recoded racial categories into white, black/African American, Asian American, American Indian/Native Alaskan, Native Hawaiian/other Pacific islanders, mixed races, and missing/other. The ethnicity coding schema was also revised in 2003, but unlike revisions to race coding, the DoD simplified the categories to distinguish Hispanics from non-Hispanics and discontinued the use of detailed ethnicity information. Therefore, we re-coded pre-2003 data to match the latest ethnicity coding schema and created missing/other category flags for those who did not provide ethnicity information or whose ethnicity was unknown. Gender is a dummy variable (1=female), as is citizenship, indicating whether the enlistee was a citizen at the time of enlistment (1=entered as a citizen). Detailed education categories at time of enlistment were recoded so that high school non-completers, GED equivalent credentials, high school graduates, and those with some college education could be identified. We also control for branch of service and time period of enlistment for demand-side determinants of conduct waiver use and rate of retention and promotion outcomes.

**METHODOLOGICAL APPROACH**

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consideration ranged from a maximum of two to an unlimited number of misdemeanors based on service branch. Post-2008, each branch adopted the policy of considering misdemeanor waivers only if the number of misdemeanor offenses did not exceed two or if the enlistee had committed only one misdemeanor offenses and no more than five lower level misconduct offenses (such as vandalism, drunk in public, etc.).

Our analysis proceeds in three stages. First, we examine the likelihood of early termination, to establish whether or not those entering with felony waivers have higher levels of attrition. Next, we examine the circumstances behind early termination, with particular attention to involuntary terminations driven by poor performance or misconduct. The last stage of our analyses examines the pace and the level of promotion experienced by those with and without felony waivers.

The unit of analysis is the individual soldier, and we restrict our empirical analysis to those with valid separation and promotion records. For analyzing categorical outcome variables, we use three sets of logistic regression models to estimate the likelihood of: 1) early termination, 2) reason for termination, and 3) promotion to rank of sergeant and above and rate of promotion based on accession and highest pay grade on record. We additionally perform robustness checks using Coarsened Exact Matching (CEM), to ensure adequate covariance balance among our waiver and non-waiver samples. For the promotion rate analysis, we use Ordinary Least Squares regression to estimate the effects of felony waiver status on the linearly-ordered rank scale.

In the first set of analyses, we focus on likelihood of an early termination to understand whether felony waivers are more or less likely to leave the service before the expiration of their term. For this stage of analyses, we first restrict our samples to 1,269,232 enlistees without breaks in enlistment, and analyze specific contexts behind early termination using 380,881 separators with one separation record.[8] Early exits from the military are usually seen as negative, known as BCDs (Bad Conduct Discharge), which occur by a court-martial and are clearly a negative employment outcome. However, honorable discharges also occur for other reasons, including combat-related injury and disability, which may be seen as a neutral or even a positive employment outcome to the extent that it signals higher standards of service. In order to better understand the circumstances behind each

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[8] We excluded roughly 1.62% of the early separators, who had multiple separation records.

termination, we also examine three major causes of early departure based on 4-digit separation codes: poor performance or misconduct, health, and death or MIA (missing in action).[9] Poor performance or misconduct accounted for 64% of early terminations, whereas health and death or MIA accounted for about 16% and 1.3% respectively. By looking at the specific circumstances under which those with felony waivers leave the military prior to completion of their service term, we can better understand if and when the enlistment of felony waivers may impose added costs. The second set of analyses evaluates positive performance indicators of promotion, here captured from two different angles. The first is a rate indicator, measuring the difference between pay grade at entry and the latest pay grade on record. Upon eliminating those without accession pay information, we analyze promotion records of 1,269,232 enlistees. Military pay grade for enlisted personnel ranges across nine different levels, and promotions follow centralized or semi-centralized guidelines depending on the class of soldier.[10] In order to account for duration of service, which also impacts the rate of promotion, we include each individual's total years served. We analyze the rate of promotion as the total number of pay ranks in which he/she advanced since enlistment and promotion to sergeant as a logistic categorical outcome.[11] [placeholder: We the 1,253,652 cases with valid enlistment and post-enlistment pay rank records. ]

To differentiate semi-automatic promotions based on time-in-service from more competitive promotions based on rigorous screening processes and occupation-specific supply and demand of

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[9] Based on the data dictionary provided by the DoD for our data, we grouped 73 separation codes into; 1) good/legitimate, 2) health, 3) death or MIA, 4) poor performance of misconduct, and 5) missing/unknown/other. Detailed coding scheme is available upon request.

[10] There are nine enlisted rank levels, starting at E1 and going to E9. Each rank level is equivalent to a pay grade. The same basic numeric rank/paygrade scale applies to officers (generally those with a college degree who enter as commissioned officers), O1-O10.

[11] We considered the possibility of conducting event-history analysis to analyze the rate and chronological order of enlistments, promotions and separations, but our data excludes re-enlistment records (if an enlistee temporarily pauses his/her service, we have no way of knowing how long the break is). As a result, this approach suffers data censoring issues.

personnel, we also analyze promotion to the rank of paygrade E5 (enlisted rank 5) and above as a robustness check. Promotion to this level comes with the Sergeant title and is considered to be more meritorious than progression in the lower levels, which is a more standardized process for junior enlistees.

**DESCRIPTIVE STATISTICS**

Figure 1 presents basic descriptive information about our sample, comparing the distributions of those with felony waivers to those without. The black circles indicate the percentage and means of the sample of felony waivers, while the grey circle indicate those for the entire non-felony waiver sample. Felony waivers comprise 4,862 cases out of 1,275,281, or about 0.4% of the valid sample. For comparison, those entering with waivers for misdemeanor-level offenses comprise a much smaller percentage, at only about one-third the size (0.14%). Waivers granted for medical reasons comprise about 4.3% of the overall sample and dependency waivers represent fewer than 1% of enlistees during this period.

[Figure 1 about here]

Since the sample is very large, statistical significance will show up for most contrasts, even those that differ little in substantive magnitude.[12] There are, however, several notable contrasts worth highlighting. First, we see considerable variation in the distribution of felony waivers across periods. We separately identify three distinct periods during which the context of military recruitment shifted in important ways: the pre-war period (2002), the war surge (2007 & 2008), and the Great Recession (2008 & 2009). Note that these are non-exhaustive and partially overlapping periods; and yet each captures a distinct environment shaping the supply and demand for military

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[12] Detailed descriptive statistics and the results of two-sample t test and test of proportions are available upon request.

service. For example, during the Great Recession of 2008 & 2009 (reaching the end of our data series), we see far lower rates of entry for those with felony waivers relative to their non-waiver counterparts (with only 6% of our felony waiver sample enlisting during this period). The severe contraction of the civilian economy during this time likely resulted in a rapid increase in supply of qualified recruits, leading to more selectivity in the use of waivers. By contrast, the "surge" of 2007 & 2008 generated escalating demand for new recruits, with the fraction of felony waivers jumping considerably during this time (roughly a quarter of both our felony waiver and non-waiver sample members were recruited during this period). The ability to analyze the performance of those recruited under such differing conditions allows us to test the robustness of our conclusions to a range of screening intensity.

Second, we see important differences in the distribution of felony waivers across branches of military service. The Army is the largest branch, comprising about 40% of our sample overall, but, even so, it waives a disproportionately high percentage of felony offenders relative to the other branches. Ninety percent of those with felony-level waivers in our sample are Army personnel. The largest and least specialized of the military branches, the Army has the least selective recruitment standard criteria in terms of education and test scores.[13]

A third important contrast between our felony waiver and non-waiver enlistees concerns their educational distributions. Roughly 10% of enlistees have only a GED; among our felony waiver sample this fraction is roughly twice as large (22%). Some of this difference may be structural, with some ex-offenders completing their degrees while incarcerated (Heckman & LaFontaine 2007). Whatever the case, GEDs are associated with poorer performance relative to

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[13]  Given the lower overall selectivity in this branch, we expect that our results will represent conservative effects of felony waivers relative to those we might observe under more selective conditions. Likewise, these results better align with the less specialized occupations to which ex-offenders typically apply.

those with high school diplomas (Heckman et al. 2014), a factor which may contribute to performance differences between those with and without felony waivers. At the same time, those with felony waivers are not uniformly at the bottom of the educational distribution. In fact, in our top educational category "some college," those with felony waivers are more than twice as likely to be represented relative to the general population (10% vs 4%).[14] This may represent evidence of the "whole person" criteria, by which waivers are granted on the basis of compelling information to offset otherwise disqualifying characteristics.

Consistent with expectations, those with felony waivers are less likely to be female (7 vs 16%); more likely to be older at enlistment (22 vs 20 yrs); and more likely to be U.S. citizens (98 vs 96%). Other demographics of felony waiver holders do not mirror the prison population, however. At the aggregate level, white enlistees fall disproportionately into the felony waiver category, relative to their population size in the military, while Blacks and other ethnic minority groups are less likely to be admitted with a felony waiver. This is surprising, as African Americans are far more likely to have a felony-level criminal record than whites in the general population (Uggen et al. 2012). Unfortunately, we do not have data for rejected applications with which to assess whether these patterns match the racial distribution of the applicant pool and/or to what degree race shapes the waiver and selection process.

**ANALYSES**

**1.** *Predicting Early Termination*

The military, like many civilian employers, invests significant resources in the recruitment and training of its workforce. For this reason, early termination-- termination prior to the

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[14] Recruits with a college degree generally enter the military as officers.

completion of service-- is costly and disruptive. In the following analysis, we examine whether individuals with felony waivers are more likely to experience early termination relative to their non-waiver counterparts.

Table 1 presents descriptive information concerning the status of service by waiver status. This indicator categorizes individuals as currently serving (never separated), having successfully completed an initial term of service and left (completed), or having left their term of duty prior to its completion (early separation). Successful term completions are similar between felony waivers and the full sample (16.8% overall), and roughly half of both groups were still in the service as of the sample end date. But early terminations appear higher among felony waivers (35%) than for the full sample (30%). Moreover, at the aggregate level, a higher proportion of felony waivers appear to separate for health reasons and slightly more for poor performance or misconduct. On this latter dimension, then, there may be reason to be concerned about the performance and commitment-level of those with criminal records.

[Table 1 about here]

Table 1 does not control for other factors that may differentiate these two categories of enlistees, such as education or period of enlistment. We turn to a multivariate framework that allows us to take a broader set of factors into account. In this analysis, we combine the top two rows in Table 1 (successful completion and ongoing service) and focus on early separation as the key outcome of interest. We then perform a logistic regression predicting early termination as a function of felony waiver status and a host of other background and service characteristics (Appendix 1). As a check on robustness, we repeat this exercise with regressions run separately by period of enlistment (full models available upon request). The first panel of Figure 2 ("all causes") presents the effect of a felony waiver on early termination, expressed as an odds ratio. Values over 1 indicate a higher odds

of early termination relative to those without waivers; values under 1 indicate lower odds. The circle at the top of the first panel represents the point estimate for all time periods combined. Confidence intervals (95%) are indicated by lines on either side of the point estimate. Here we see that the odds of early termination are virtually identical for those with felony waivers relative to those without (OR=.96, ns). The remaining three point estimates, representing distinct periods of enlistment, show very similar patterns. Even under highly differing regimes of selectivity, then, we see little evidence that those with felony waivers are more prone to desertion or expulsion than their non-waiver counterparts.

Although our focus is on the felony waiver effect of separation probability, we briefly note a few other significant predictors of early separation from the first column of Appendix 1. Entrants with misdemeanor waivers are no more likely to separate early either, while those with medical waivers are more likely to separate early and those with dependent waivers are less likely to do so. Early separation is also associated with military service in the Army compared to other branches. Men, foreign-born enlistees, and most ethnic minorities are less likely than whites to separate early.

[Figure 2 about here]


**2.**     *Examining the Causes of Early Separation*

The remaining three panels in Figure 2 disaggregate those who separate early into three specific types: "poor performance or misconduct" refers to termination caused by disciplinary infractions, criminal acts, and poor behavior; "health" refers to termination caused by health conditions and disability that prevent continued service; and "death" refers to the loss of life while in service of the military. Estimates from the full model can be found in Appendix 1.

The results in panel 2 suggest that those with felony pasts are no more likely to terminate for conduct reasons than their non-waiver counterparts. In the full sample with all time periods combined, we see an odds ratio very close to one (1.1, n.s.), suggesting no difference between those with and without felony waivers in the odds of termination for cause. And while confidence intervals vary as a function of sample size in each period, the period-specific point estimates consistently show little difference in the performance of those with felony waivers.

Similarly, those with felony waivers are no more likely to terminate for health reasons; in fact we see some modest evidence that, during the surge, those with felony waivers were actually less likely to leave for health reasons.[15] The one category of early termination for which we do see elevated risks among those with felony waivers is in their higher risk of dying. In the full sample, those with felony waivers are one and a half times more likely to lose their life in the course of service relative to those without waivers. Point estimates across periods present largely consistent results.[16] As an attempt to investigate this disparity further, we analyzed combat- and non-combat-related deaths separately, finding a larger percentage of felony waivers in both categories. We cannot, therefore, definitively attribute this differential to a higher rate of combat duty assigned to those with waivers. Future research with larger samples, measures of occupation (e.g., infantry vs clerical), and exposure to combat would be helpful in disentangling this relationship.

Overall, then, we see no evidence that individuals with serious criminal records show elevated levels of early termination. And when we look specifically at termination for cause -- poor performance, misconduct, or criminal activity -- those with felony waivers look indistinguishable

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[15] Detailed results available upon request.

[16] We were unable to estimate the effect of a felony waiver on deaths among those who entered during the recession as the sample size here is very small and no felony deaths were recorded.

from those without. These results suggest that, with effective screening, the employment of individuals with serious criminal records can contribute to a stable and satisfactory workforce.

The analysis to this point has focused on those with waivers for felony-level criminal records ("major conduct" waivers). For comparison, we can examine a similar analysis for those with waivers for misdemeanor-level criminal records ("minor conduct" waivers) (see Appendix 1). Interestingly, those enlisted with waivers for minor misconduct show patterns somewhat different from their felony misconduct counterparts. While overall rates of attrition are no higher than those of non-waiver individuals, some important differences emerge when we look at specific causes of early termination. Most notably, individuals with misdemeanor-level waivers are one and a half times more likely to separate for reasons of poor performance or misconduct relative to those without waivers (OR=1.56, p<.05). Unlike their felony-level counterparts, then, we do see some evidence that low-level criminal records may be associated with negative performance. A history of low-level repeat offending may signal a behavioral style less compatible with the highly structured military environment; or it may be the case that those admitted with low-level offenses are subject to less intensive screening (relative to their felony-level counterparts) in the waiver process.

We briefly note a few other interesting trends in Appendix 1. Separating for poor conduct is more common during the war surge period and during the recession period compared to during times of peace. This may be linked to a greater incentive for enlistees to commit offenses leading to their dishonorable discharge during times of war, and, during recession, the military's prerogative for allowing a dishonorable discharge depending on the vicissitudes of supply and demand. Citizens, some minorities, those without a high school degree and GED holders are more likely to separate early for conduct reasons, but less likely to separate due to health or loss of life.

Given the available data, we cannot identify the specific factor(s) that may differentiate those with more and less serious criminal histories. What we can more safely conclude is that, while not all those with criminal records perform well in this particular employment context, the integration of those with felony-level criminal records -- the type of criminal record of most concern to employers -- can achieve patterns of attrition that are indistinguishable from those without records.

### 3.      *Predicting Promotions*

The analysis above shows that those with felony waivers are no more likely to terminate early, and show no higher rates of poor performance or misconduct, than those without. These measures assess stability and negative performance, both of which are particularly important for assessments of worker suitability. In the next set of analyses, we turn to more positive indicators of performance, as measured by rates of promotion. We assess promotion success using two measures, the first capturing the rate of promotion (a continuous measure) and the second capturing the likelihood of promotion to the rank of Sergeant and above (a binary measure). Absent controls, those with felony waivers demonstrates rates of promotion roughly .25 ranks higher than their non-waiver counterparts. They are likewise 5 percentage points more likely to achieve promotion to sergeant rank (see Table 2).

```
     Major |
Misconduct: |     Summary of Promoted to E5+
      All |      Mean   Std. Dev.      Freq.
------------+-----------------------------------
  No Felony |  .15899582  .36567234     1264398
  Felony Wa |  .20872983  .40644294        4834
------------+-----------------------------------
     Total |  .15918524  .36584888     1269232
```

[Insert Table 2 here]

Turning to a multivariate framework, Figure 3 shows the rate of promotion for those with and without felony waivers over time, controlling for the rank at which the individual entered the service and total years enlisted, among other controls.[17] Here we find that those with felony waivers demonstrate a faster rate of promotion than their non-waiver counterparts. Specifically, our estimates suggest that those with felony waivers are promoted roughly 0.087 ranks more than non-waivers with similar starting points and years of experience. Over a typical service duration of X years, this suggests that those with felony waivers wind up on average X*.087 ranks above their non-waiver peers. Contrary to negative expectations concerning those with serious criminal records, then, we see evidence that those with felony-level histories outpace their peers in successful mobility through the organization.

[Insert Figure 3 about here]

Interestingly, other waiver categories do not fare as well. Individuals with waivers for misdemeanor-level offenses have lower rates of promotion than comparable recruits, as do those entering with dependent and health waivers (see full model in Appendix 2). Again, it is not possible for us to disentangle whether this is due to a less stringent process for granting waivers in these cases or due to ongoing challenges that limit these individuals' successful advancement.[18]

Promotions occurred more rapidly during the war surge than they did during the economic recession or during peacetime. Promotion rates were fastest in the Army than in other branches,

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[17] To account for differences in waiver selectivity across military branches and over the time period, we also ran models with a two-stage Heckman correction for selectivity into criminal waiver status and found similar results, not shown. We found no significant interactions between the felony waiver variable and other variables except for the non-high school graduate variable. Felony waivers without high school degrees were especially likely to out-perform their non-felony waiver counterparts, presumably a reflection of the heightened screening that goes into these enlistees.

[18] One weakness of the promotion models is that the demand and supply of specific occupations, particularly at higher paygrades, may also influence how quickly and to what level one can be promoted. We do not have occupational data to be able to address unobserved heterogeneity of this sort. If enlistees with waivers are more or less likely to be placed in higher mobility occupations, then this could influence the observed pattern of results.

which may be a function of the Army's larger size. Promotion rates are positively correlated with higher cognitive ability (AFQTP) scores. And, despite the military's equal employment opportunity reputation, women, noncitizens, and African Americans experience slower promotion rates. Hispanics, however, have slightly faster promotion rates.

As a test of robustness, another approach to analyzing advancement is captured by our measure of promotion to Sergeant rank or above. Promotion to this level is considered to be more meritorious than progression in the lower ranks, the latter of which is a more standardized process for junior enlistees. On this promotion outcome, we again find greater promotion success for enlistees with felony waivers. They are 33% more likely to be promoted to the rank of Sergeant than similar enlistees with no such waiver (see Appendix 2 for full model). Even at this more selective stage, then, we see individuals with serious criminal histories performing better than their counterparts with no criminal record.

As a way of calibrating the relative promotion rates of those with felony waivers to other status groups of interest, we calculate a series of predicted probabilities for key groups, with all other values set to their means. In particular, we focus on those with low measured cognitive ability (AFQT=25th percentile), high measured cognitive ability (AFQT=75th percentile), those entering with GEDs, and a comparison category in which all characteristics have been set to their mean values (see Figure 3). Enlistees with a felony waiver do better on this measure than the average enlistee with no waiver, and are promoted in equivalent measure as those who perform in the top 75th percentile of cognitive ability (AFQT).

[Figure 3 About Here]

The results from our promotion models provide consistent evidence: To the extent that those with felony waivers differ from those without, it is in the direction of more successful advancement

through the ranks. Despite widespread concerns about the commitment or competence of individuals with serious criminal histories, the current evidence suggests that these individuals can meet and exceed standards of performance.

## DISCUSSION

The military waiver program offers a rare glimpse into the work performance of thousands of individuals with criminal records who are offered positions with America's largest employer. Using a process known as the "whole person" review, the military takes into account the nature of the individual's offense, compensating skills and experience, and a range of input from personal interviews. In theory, this screening process for felony waivers should result in job performance that is indistinguishable from non-offender recruits. Accordingly, we find that felony waivers are just as likely as any other military personnel to successfully carry out their employment contract. Likewise, they are no more likely to be terminated for reasons of poor performance or misconduct. But we are intrigued to also find that those with felony waivers are promoted faster through each paygrade and that they more often make it to the rank of sergeant than non-offender recruits.

What might be the reasons for the comparative success of felony waivers to other soldiers? One possibility is that the "whole person" selection process does not just weed out potentially poor performing ex-offenders, but it also selects individuals who will ultimately perform at higher than average levels. If so, rather than categorically turning applicants with criminal records away, civilian employers may have much to gain in considering a similar screening process.

Interestingly, the entry characteristics of those with felony waivers are not dramatically different from other recruits on observable characteristics as might be expected (such as educational attainment, cognitive ability). We speculate that the success of the screening process may instead

derive from variables not captured by our data—self-presentation in face-to-face interviews, careful consideration of the nature and timing of the crime, and recommendations from referrals who can provide evidence of rehabilitation. These more qualitative components of the screening process are important to take into consideration.

The other likely explanation for felony waivers' high performance relates to their relatively poor employment prospects overall. The scarcity of stable employment for felons is likely to generate greater commitment to an employer who is willing to take a chance on them. In the case of the military's felony waiver program, ex-felons may work harder to get promoted and look to military service as a more long term career because they believe they will not find such opportunities in the broader labor market.[19]

We have focused our attention in this paper on felony waivers because ex-felons experience the most discrimination on the job market. At the same time, it is important to note that our analyses do not show high levels of performance for all categories of ex-offenders. Those with less serious criminal records -- admitted with misdemeanor-level waivers -- perform worse than other soldiers across key dimensions of attrition and promotion. They are more likely to cut short their term of employment due to poor performance and they are less likely than the average recruit to be promoted, just the opposite of what we find for felony ex-offenders. This may again be a reflection of the whole person screening process, the criteria for which are more stringent for serious offenders, while recruits with minor offenses undergo less scrutiny (CITE). If this is the case, it suggests that the whole person screening should be equally applied to job applicants with more minor infractions. On the other hand, it may be the case that the severity of the offense is less

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[19] Similar views are expressed by some civilian employers who hire ex-offenders. For example, one employer reported that he "liked hiring people who had just come out of prison because they tend to be more motivated, and are more likely to be hard workers" (Pager 2007: XX).

predictive of employment success than a history of repeat low-level offending, particularly in highly structured environments like the military. Additional research with more detailed information on criminal histories would help to answer some of these remaining questions.

Another unexpected finding is the high death rate of felony waivers compared to other recruits. A waived recruit's offender status is sealed once they enlist so as to protect them from labeling bias as they move through their military career. However, different branches have differing policies on when occupations are assigned. In the Army and Marines, recruiters (who are aware of waiver status) tend to play a larger role in occupational assignment, whereas Navy and Air Force assignments fall largely to commanders following basic training (Powers 2014). Our samples of death causes are too small to identify reliable patterns by branch, and even then we lack data on occupation. Future research should investigate whether felony waivers are more likely to be assigned to combat duty, placing them at higher risk of death than their non-waiver counterparts.

CONCLUSION

Employers have legitimate concerns about hiring employees with a criminal past, but there has been little available evidence to assess whether or not their expectations are borne out in the workplace. Our research demonstrates that, given a holistic screening process, hiring ex-felons can result in adequate, and even advantageous, worker outcomes.

To what extent can these findings generalize to the civilian labor market? As discussed above, the military has several unique characteristics that distinguish it from typical civilian jobs: It is a highly structured environment in which soldiers both live and work. Hierarchy, authority, and discipline are at a premium in this context, with a high degree of surveillance across all aspects of performance. It is difficult to know whether this setting is a best-case or worst-case scenario for the

successful integration of ex-offenders. Highly structured environments can be helpful for those who have made poor decisions in the past. On the other hand, the strict emphasis on hierarchy and discipline is likely to be challenging, particularly for those who have had negative experiences with authority figures. Yet there is also the belief that the military setting is not different enough to change behaviors. For example, a former Navy judge and current Law School Dean was quoted, "*Somebody who has demonstrated themselves to be guilty of misbehavior in civilian life has a good chance of behaving in the same way in the military.*" (Bender 2007). We remain agnostic as to whether the typical civilian employment context would have stronger or weaker results, given similar conditions of entry. We encourage future research to replicate this research in civilian contexts. Given the widespread adoption of Ban the Box laws throughout the country (delaying the presentation of criminal record information until the end stages of the employment process as an effort to promote the employment of ex-offenders), we may see increasing opportunities to observe ex-offenders across a wide range of workplace contexts.

Importantly, the military's "whole person" review bears striking similarity to the EEOC guidelines for reviewing applicants with criminal records, which emphasizes an individualized assessment that takes into consideration the nature of the crime, time since conviction, and evidence of rehabilitation. This, paired with employers' standard practice of reviewing the applicant's skills and experience and speaking with their references, offers the opportunity for the kind of holistic review that has proved successful in the military context. Unfortunately, the existing research on employers' assessments of applicants with criminal records suggests that this individualized review is far from the norm. Rather, employers appear to use criminal records as an easy screen to weed out applicants at the early stages of review (Holzer 1996; Pager 2003). Given the findings of our research, employers may thus be missing out on a large number of potentially high quality workers

who are disqualified by virtue of their criminal record. Efforts to encourage a more holistic review of these candidates, such as Ban the Box laws which delay the introduction of discrediting information, may be helpful in this regard.

Finally, we wish to emphasize that the work performance of ex-offenders is both an outcome and a treatment. In the present study we have examined the work performance of individuals with felony waivers as a key outcome for investigating the integration of ex-offenders into the workplace. But work experience has an impact in and of itself. Evidence suggests that ex-offenders who find employment are significantly less likely to recidivate (OPRE 2012, Uggen 2000). Work experience following a spell of incarceration has also been shown to reduce the stigma of a criminal record (Pager, 2007). Similar benefits may attach to ex-offenders with intervening military service. In this sense, the enlistment or employment of ex-offenders may have beneficial effects for the workplace as well as benefits for the longer term integration and wellbeing of ex-offenders within their communities.

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**Tables and Figures**

**Figure 1: Descriptive Summary**
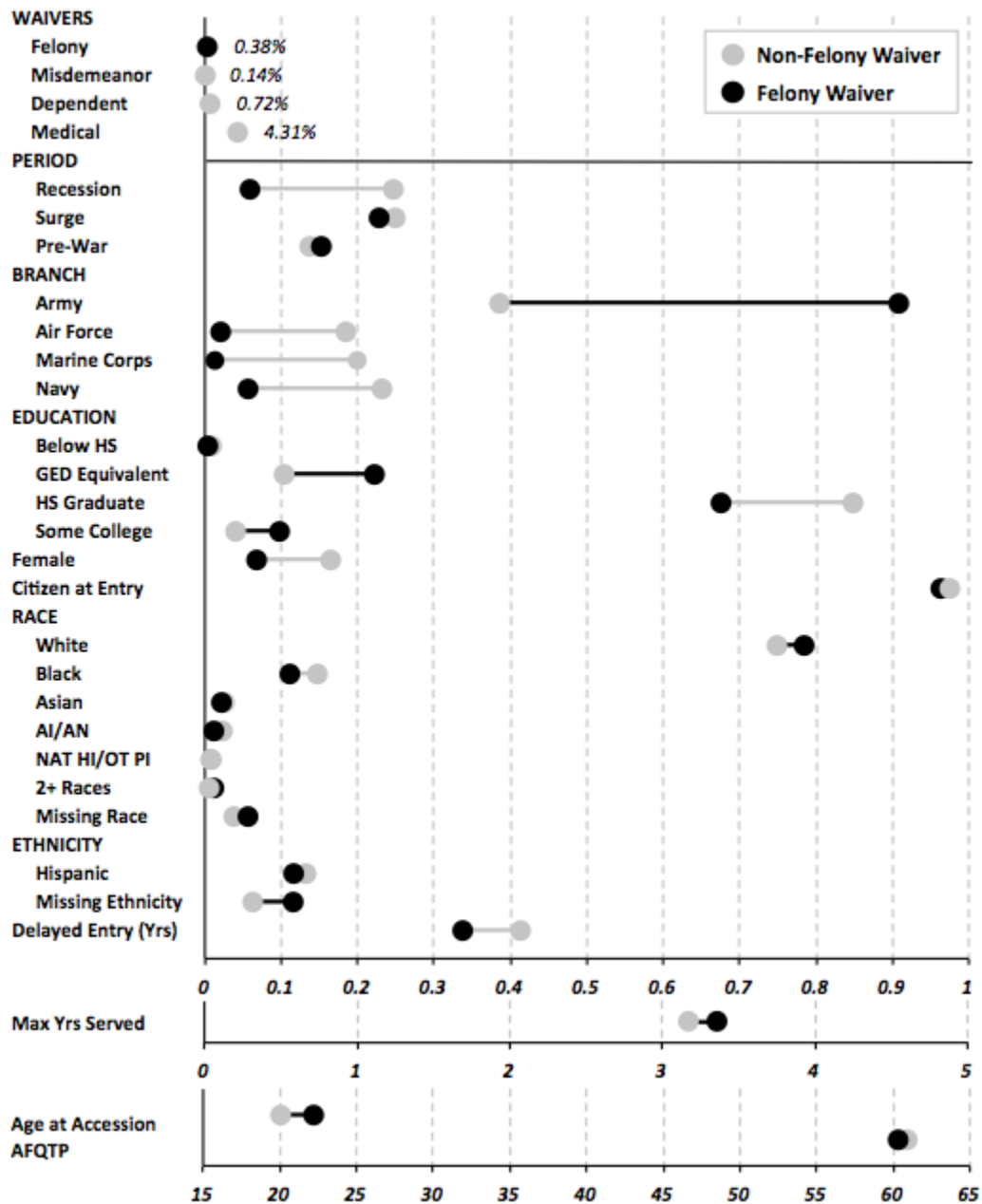
**Table 1. Service Status by Felony Waiver and Separation by Causes**

| | Non-Felony Waiver | | Felony Waiver | |
|---|---|---|---|---|
| Never Separated | 666,460 | 52.71% | 2,330 | 48.20% |
| Completed Term & Left Service | 212,512 | 16.81% | 779 | 16.12% |
| Early Separation | | (30.48%) | | (35.68%) |
| *Good/Legitimate* | 18,908 | 1.50% | 60 | 1.24% |
| *Health* | 62,542 | 4.95% | 430 | 8.90% |
| *Death* | 4,878 | 0.39% | 47 | 0.97% |
| *Poor/Misconduct* | 243,569 | 19.26% | 1,041 | 21.53% |
| *Missing/Unknown/Other* | 55,529 | 4.39% | 147 | 3.04% |
| **Total (N = 1,269,232)** | 1,264,398 | 100.00% | 4,834 | 100.00% |

*Note:* Excludes those with reenlistment history except for immediate reenlistment, meaning that we assume no break in service.

**Add Table 2 here after adding means for promoted to E5+**

**Figure 2:**



The Effect of Felony Waivers on Likelihood of Early Termination, by Cause
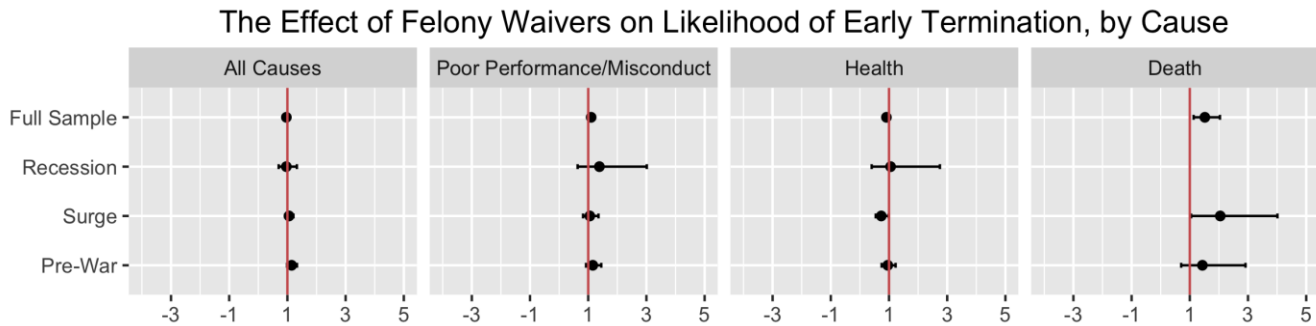
**Figure 3.**
**Figure 4:**

## Probability of Being Promoted to Rank of Sergeant and Above
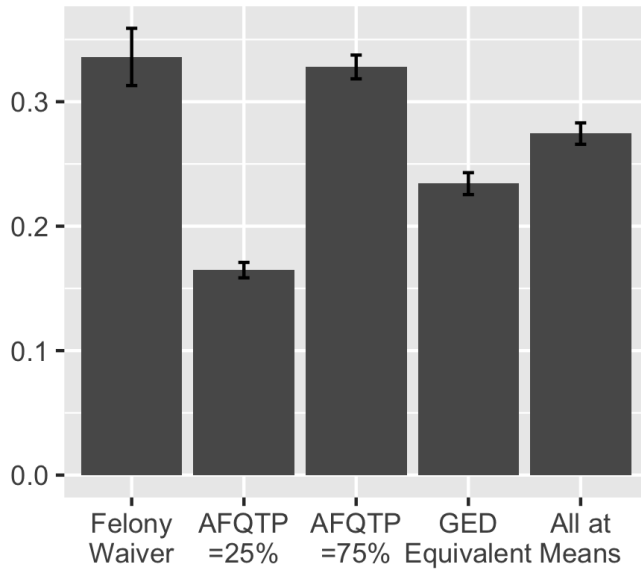


**Appendix 2. Promotion Models: Rate of Promotion and Likelihood of Being Promoted to Sergeant Rank and Above**

| | Logistic Model Analyzing Likelihood of E5 and Above | | OLS Model Analyzing Rate of Promotion | |
|---|---|---|---|---|
| **N = 1,269,232** | *Exp. Coef.* | *z Statistics* | *Coefficient* | *SE* |
| *Waiver* | | | | |
|    **Felony** | 1.3315*** | (5.98) | 0.0868*** | (0.0106) |
|    **Misdemeanor** | 0.8957 | (-0.78) | -0.1154*** | (0.0172) |
|    **Dependent** | 1.0782 | (1.85) | -0.0303*** | (0.0077) |
|    **Medical** | 0.8629*** | (-9.2) | -0.0291*** | (0.0032) |
| *Period* | | | | |
|    **Recession** | 0.0660*** | (-32.03) | -0.4383*** | (0.0020) |
|    **Surge** | 0.3240*** | (-51.31) | 0.2554*** | (0.0017) |
|    **No-War** | 0.8049*** | (-22.93) | -0.0630*** | (0.0020) |
| *Branch (Omitted: Army)* | | | | |
|    **USAF** | 0.4290*** | (-81.78) | -0.1507*** | (0.0020) |
|    **USMC** | 0.8156*** | (-20.05) | -0.1536*** | (0.0019) |
|    **USN** | 0.7340*** | (-33.38) | -0.2509*** | (0.0018) |
| **Female** | 0.8546*** | (-15.78) | -0.0352*** | (0.0018) |
| **Citizen at Entry** | 0.9804 | (-1.14) | -0.0341*** | (0.0036) |
| *Race (Omitted: White)* | | | | |
|    **Black** | 0.7347*** | (-29.29) | -0.0510*** | (0.0019) |
|    **Asian** | 0.8978*** | (-5.16) | 0.0040 | (0.0042) |
|    **AI/AN** | 0.9627 | (-1.62) | -0.0032 | (0.0045) |
|    **NAT HI/OT PI** | 0.9429 | (-1.58) | -0.0147* | (0.0069) |

| | | | | |
|---|---|---|---|---|
| **2+ Races** | 0.9329* | (-2.29) | -0.0253*** | (0.0060) |
| **Race Missing/NA** | 1.0151 | (0.9) | 0.0113** | (0.0037) |
| ***Ethnicity (Omitted: Non-Hispanic)*** | | | | |
| **Hispanic** | 1.0279** | (2.62) | 0.0181*** | (0.0020) |
| **Ethnicity Missing/NA** | 1.0467*** | (3.49) | 0.00421 | (0.0030) |
| ***Education (Omitted: HS Graduates)*** | | | | |
| **Below HS** | 0.7077*** | (-7.41) | -0.0803*** | (0.0070) |
| **GED Equivalent** | 0.7843*** | (-18.4) | -0.0565*** | (0.0022) |
| **Some College** | 0.9151*** | (-5.2) | -0.0207*** | (0.0034) |
| **AFQTP** | 1.0183*** | (95.15) | 0.00308*** | (0.0000) |
| **Age at Accession** | 1.0328*** | (25.42) | 0.00603*** | (0.0002) |
| **Delayed Entry (Years)** | 1.2115*** | (33.12) | 0.0921*** | (0.0011) |
| **Accession Pay Rank** | 1.5487*** | (96.69) | -0.646*** | (0.0009) |
| **Max Years Served** | 2.8168*** | (364.12) | 0.4204*** | (0.0005) |
| **Early Separation** | 0.6331*** | (-42) | -0.3321*** | (0.0019) |
| **Constant** | | | 1.324*** | (0.0065) |
| | | * $p<0.05$ | ** $p<0.01$ | *** $p<0.001$ |

## Appendix 1. Separation Model: Likelihood of Separation and Early Separation by Causes

| | Likelihood of Separation (N = 1,269,232) | | Early Separation by Separation Causes (N = 380,881) | | | | | |
| | | | Poor Performance | | Health | | Death | |
| | Exp. Coef. | z | Exp. Coef. | z | Exp. Coef. | z | Exp. Coef. | z |
|---|---|---|---|---|---|---|---|---|
| **Waiver** | | | | | | | | |
| Felony | 0.9643 | (-1.18) | 1.1011 | (1.89) | 0.9110 | (-1.63) | 1.5172** | (2.78) |
| Misdemeanor | 0.9242 | (-1.33) | 1.5634*** | (3.52) | 0.6659* | (-2.07) | 0.8890 | (-0.20) |
| Dependent | 0.9282** | (-3.06) | 0.9370 | (-1.50) | 0.8719* | (-2.30) | 1.2789 | (1.32) |
| Medical | 1.0856*** | (8.49) | 0.9222*** | (-4.88) | 1.1579*** | (7.45) | 0.8608* | (-2.24) |
| **Period** | | | | | | | | |
| Recession | 0.4507*** | (-141.49) | 2.0036*** | (57.15) | 0.4484*** | (-46.52) | 0.6051*** | (-9.25) |
| Surge | 0.8365*** | (-33.86) | 1.1500*** | (13.53) | 0.9525*** | (-3.59) | 0.8677** | (-3.22) |
| No-War | 1.3489*** | (52.39) | 0.8418*** | (-18.43) | 1.0545*** | (4.40) | 0.9133* | (-2.28) |
| **Branch (Omitted: Army)** | | | | | | | | |
| USAF | 0.7748*** | (-42.26) | 1.3779*** | (30.61) | 0.3137*** | (-76.62) | 0.2607*** | (-21.59) |
| USMC | 0.6979*** | (-60.20) | 2.0987*** | (64.26) | 0.4224*** | (-59.77) | 1.0016 | (-0.05) |
| USN | 0.9558*** | (-8.27) | 1.3201*** | (29.42) | 0.2649*** | (-93.34) | 0.3229*** | (-23.22) |
| Female | 1.8512*** | (118.39) | 0.4480*** | (-97.26) | 1.0340** | (3.07) | 0.1564*** | (-25.92) |
| Citizen at Entry | 1.5588*** | (36.16) | 1.3482*** | (13.31) | 0.9065*** | (-3.41) | 0.6752*** | (-4.94) |
| **Race (Omitted: White)** | | | | | | | | |
| Black/AA | 0.9059*** | (-16.78) | 1.4092*** | (32.84) | 0.6897*** | (-25.98) | 0.8249*** | (-3.99) |
| Asian | 0.6318*** | (-31.94) | 1.0140 | (0.52) | 0.8500*** | (-4.45) | 1.0374 | (0.33) |
| AI/AN | 1.0156 | (1.14) | 1.1800*** | (6.95) | 0.8065*** | (-6.03) | 1.0724 | (0.64) |
| NAT HI/OT PI | 0.5844*** | (-21.69) | 1.2319*** | (4.29) | 0.8262** | (-2.88) | 1.1554 | (0.76) |
| 2+ Races | 0.8970*** | (-5.66) | 0.9926 | (-0.21) | 0.9084 | (-1.95) | 1.1831 | (1.15) |
| Race Missing/NA | 0.9152*** | (-7.83) | 1.0173 | (0.88) | 0.9620 | (-1.65) | 1.0713 | (0.96) |
| **Ethnicity (Omitted: Non-Hispanic)** | | | | | | | | |
| Hispanic | 0.7214*** | (-50.50) | 0.9793 | (-1.78) | 0.8876*** | (-7.54) | 1.1595** | (3.17) |
| Ethnicity Missing/NA | 1.0876*** | (9.59) | 0.9830 | (-1.20) | 0.9898 | (-0.61) | 0.9825 | (-0.32) |
| **Education (Omitted: HS Graduates)** | | | | | | | | |
| Below HS | 1.6021*** | (23.17) | 1.7575*** | (15.20) | 0.6351*** | (-9.11) | 0.6858* | (-2.38) |
| GED Equivalent | 1.6565*** | (78.17) | 1.4608*** | (34.78) | 0.8093*** | (-16.39) | 0.7187*** | (-7.64) |
| Some College | 1.1414*** | (12.84) | 1.0439* | (2.46) | 0.9371** | (-3.01) | 0.9242 | (-1.02) |
| AFQTP | 0.9934*** | (-58.86) | 0.9570*** | (-36.14) | 1.0540*** | (37.28) | 0.9667*** | (-6.20) |
| Age at Accession | 1.0028*** | (3.78) | 0.9936*** | (-32.16) | 1.0028*** | (11.24) | 1.0035*** | (4.37) |
| Delayed Entry (Yrs) | 0.9908** | (-2.74) | 0.9749*** | (-4.31) | 1.0419*** | (5.48) | 1.0142 | (0.58) |