

[Job] Locked and [Un]loaded Evidence of the Effect of the Affordable Care Act Dependency Mandate on Job Lock in the U.S. Army.*

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March 20, 2018

Abstract

One concern with employer-based health insurance is job lock or the inability for employees to leave their current employment for better opportunities because of employer sponsored health insurance. We use the implementation of the Affordable Care Act's dependency mandate as a natural experiment. Data from the United States Army overcomes some limitations in previous studies including the ability to examine workers with fixed contract expiration dates, uniform pay, and health coverage. We find that the ACA decreased reenlistment rates by five percent for enlisted soldiers ages 23-25. We also find that younger veterans who leave the Army are more likely to attend college. These findings show that the ACA reduced job lock and increased college going.

*The authors would like to thank the Office of Economic and Manpower Analysis for providing the data and helpful feedback. The authors would like to thank David Lyle, Susan Carter, Patrick Bell, Andrew Johnston, Richard Patterson, Benjamin Cowan, and Matthew Baird for their helpful comments. We also thank the participants at conferences and seminars at San Diego State University, University of Nevada-Las Vegas, Utah State University, Western Economic Association International, and the Southern Economic Association. The views expressed herein are those of the authors and do not reflect the position of the United States Military Academy, the Department of the Army, or the Department of Defense.

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1 Introduction

The United States Congress passed the Affordable Care Act (ACA), colloquially termed “Obamacare”, on March 23, 2010. The ACA’s proponents in Congress and the White House claimed that the ACA allows more people access to health insurance and reduces their dependency on employer-provided insurance coverage, which in turn creates a more flexible and efficient labor market. In response to a Congressional Budget Office report that the ACA reduces employment, House Minority Leader Nancy Pelosi (D-Calif.) stated that the Affordable Care Act will enable more than 2 million workers to escape job-lock the situation where workers remain tied to employers for access to health insurance benefits (Blake, 2014). One of the ACA’s most prominent coverage-expanding features is the dependent mandate, which requires all private insurance plans that offer dependent child coverage to allow that coverage to continue until the dependent’s 26th birthday (Centers for Medicare & Medicaid Services, 2017).

When employees consider leaving a job to find one that better matches their skills, they consider both the benefit their current job provides and the opportunity cost of staying in the job. For young Americans, this option may be another job, an educational opportunity, or some other activity that they perceive builds up valuable human capital. One opportunity cost of switching jobs is the change in employer provided health insurance. Workers could conceivably not choose to switch to a better match if they perceive that the alternative job’s health insurance plan is of lesser quality, more expensive, or non-existent. In 2016, an individual employee’s health insurance coverage cost averaged \$5,615, with workers contributing \$951 of these costs out of pocket (National Conference of State Legislatures, 2017). The Bureau of Labor Statistics estimated that insurance costs contributed to 7.6 percent of total compensation for private employees and 11.8 percent for state and local employees (Bureau of Labor Statistics, 2017). Because of these high costs, many employees could feel locked into their jobs and do not switch employers due to the cost of losing employer-provided health insurance.

Research provides empirical support for the idea that individuals stay in jobs due to health insurance. Madrian (1994) finds that individuals whose spouses have access to insurance are

15-25 percent more likely to leave jobs than those without spousal access to health insurance coverage, and Hamersma and Kim (2009) found that increases in Medicaid eligibility had a statistically significant positive correlation with job turnover for unmarried women. These findings suggest that without easily accessible health care coverage outside their jobs, employees may calculate the opportunity cost of leaving that job as too high. However, several factors make it difficult to assess job lock's magnitude: compensation packages differ across employers; employees decisions to leave or stay in firms are not done at pre-fixed times; and employees and the jobs they do are vastly different across the labor force. Empirical evidence indicates that the dependent mandate caused a substantial increase in the number of young adults with insurance coverage. Further research also finds that the mandate decreased young adults participation in the labor market (Antwi, Moriya and Simon, 2013; Depew, 2015).

While these papers show that there is causal evidence that employer based health insurance may induce job lock, there are some limitations to generally used data sets. First, there is considerable variability of salary and health benefits among jobs that may be unobservable to the researcher.¹ Second, there is endogeneity² concerns about the timing of when to leave a job that may be influenced by the policy change. Third, it is difficult to ascertain the health status of the worker and ensure that our results are not being driven by differences in health rather than portability of health insurance. Finally, it can be unclear in the data as to whether the worker leaves the firm because of their own choice or whether firm has laid the worker off. These unobserved factors could attenuate the effects of the ACA (or policies that increase the portability of health insurance) towards zero.

The ideal experiment in this setting would be a situation where workers were paid equally and have access to the same form of health insurance before the policy change. Also, it would have been helpful if the data that a worker must consider leaving the firm was set in advance of

¹For example, the National Longitudinal Study of Youth and the Current Population Survey have indicators for whether the worker has employer sponsored health insurance, but no information on coverage or costs.

²Bailey and Chorniy (2016) point out a number of concerns from the previous job lock literature such as using married vs single workers (i.e. Bansak and Raphael (2008) and Adams (2004)) or healthy vs unhealthy workers (i.e. Stroupe, Kinney and Kniesner (2001) and Bradley, Neumark and Motika (2012) as treatment and control groups. Bailey and Chorniy (2016) argue that there is unobserved sorting that drives workers into either of these groups.

the policy and there was a clear decision point. Uniformity of worker health would ensure that worker were deciding to leave a firm because of insurance and not a negative health shock. Finally, a researcher would want to ensure that workers were given the opportunity to stay but chose to leave: thus signaling that they were locked into a particular job because of the inability to transfer health insurance to their new careers.

U.S. Army data³ remedy several problems that civilian workforce data face. First, all Army personnel have nearly identical compensation package at each rank and inside each occupational branch. We can easily control for those differences that may exist. One notable benefit the Army provides to soldiers at every rank is their health care network, which allows soldier's full medical coverage at no out of pocket cost. Second, when a soldier enlists into the Army, they set a term of contract that expires usually in three to five years. Soldiers cannot submit a "two week" notice and move into the civilian sector without facing high penalties. This situation creates a designated date that a soldier must decide whether to leave that was set before the ACA was considered. Third, all soldiers must pass stringent health and fitness requirements and may be discharged due to poor health, fitness, or disability. We can easily identify these individuals and have dropped them from our sample. Finally, when a soldier's contract expires, the Army must first offer the soldier the opportunity to re-enlist. If the soldier has exhibited inability or unwillingness to complete duties or has performed poorly, the Army will not retain them. Our sample is conditional on the Army offering the soldier re-enlistment and thus if a soldier leaves in our sample it is by their own choice. While the Army setting is different than studying other sectors in the labor market, its unique characteristics allow us to avoid certain limitations that may exist in previous studies.

³Others have studied the effects of access to health insurance on the labor supply decisions of veterans who have already left the service. Boyle and Lahey (2010) use a policy change in the 1990s that expanded veteran eligibility for access to the Veterans' Affairs (VA) hospital network. The authors find that this expansion of coverage decreased labor supply amongst lower education veterans, while college graduates were more likely to be self-employed. Boyle and Lahey (2016) find similar results for spouses of affected veterans. Autor et al. (2016) use the expansion of VA disability compensation to veterans exposed to Agent Orange as a natural experiment and find that veterans with increased benefits reduced their labor supply. Coile, Duggan and Guo (2015) find similar effects to veterans given increases in disability compensation of the early 2000s. Our paper contributes to this literature by exploring the effects of the passage of the Affordable Care Act on the labor supply decisions of active duty military members as opposed to those who had previously separated from the military.

Prior to the Affordable Care Act (ACA), a young adult's decision to leave the Army would mean that they may lose health care coverage. Because fully-funded health care was not guaranteed outside the military, soldiers may have assessed a low opportunity cost for reenlisting due to the high cost of health care they may have incurred upon leaving the Army. However, soldiers younger than 26 can now leave the military at the end of their contract's term and return to their parents insurance plans. This paper hypothesizes that the ACA's dependent insurance mandate causes enlisted soldiers below age 26 to leave the Army at a higher rate due to the decrease in health care costs they now face outside the Army. These lower health care costs increase the value of a soldier's next best option and increases the opportunity cost of reenlisting.

We use the sudden increase in health insurance access for those Americans younger than 26 years old to determine the effect that this access had on soldiers reenlistment rates. With the dependent mandate's passage, the Army health care system's value decreased relative to health care options outside the Army. Defining how this decrease affected soldiers reenlistment decisions helps determine how valuable health care access is to young adults in the U.S. Army. Determining the value that soldiers assign to their health insurance benefits informs analyses of soldiers labor market decisions and the magnitude of job lock within the U.S. Army's junior enlisted ranks. This information aids policymakers as they determine an incentive package that maximizes soldiers utility while trying to minimize costs to taxpayers. This requires policymakers to provide compensation with a cost that matches the soldier's perceived value. Retaining soldiers increases the Army's human capital and decreases the number of new soldiers the Army needs, which decreases total replacement costs. This paper's question is thus an issue not only of labor supply decisions, but of military readiness and national security.

Our final estimates indicate that that the Affordable Care Act reduced soldier reenlistment rates by 2.5 percentage points, or 5 percent for enlisted soldiers ages 23-25. This result is robust to the addition of various controls and home state of record fixed effects. Heterogeneous treatment effects further indicate that white males are the most responsive to the dependent mandate, and that responsiveness to the mandate is positively correlated with educational

attainment. Placebo tests that use different treatment groups and year specifications indicate that the results are due to the dependent mandate and not to contemporaneous year or age effects.

The data that we use indicates that in 2013 the Army offered 24,838 soldiers under 26 years old the option to reenlist, with 14,887, or 59 percent, of those soldiers electing to reenlist. Our findings thus estimate that the dependent mandate reduced reenlistments by 621 soldiers in 2013. The costs to replace these soldiers include training and recruitment as well as lost human capital within the Army that decreases efficiency and preparedness within units. This paper demonstrates that the ACA effectively changed behavior in young adults and provides evidence of job lock within the Army's soldier population under 26 years old.

In addition, to better understand the extent of job lock in this context, we test whether the soldier leaving the Army moves to better opportunities in the labor force. To test this hypothesis, we use data regarding Post 9/11 GI Bill usage and find that veterans that have access to their parents' health insurance are more likely to use their GI Bill benefits. These findings are important since turnover due to health insurance portability may increase a firm's costs, but increased education and labor market opportunities are beneficial to the worker. We find that a veteran with access to health insurance because of the dependency mandate is three percent more likely to attend college on the GI Bill.

Following this introduction, section 2 provides a general outline of the U.S. Army's structure, an overview of the differences between the Army and civilian labor markets, and discuss how our research contributes to the United States national security situation. Section 3 provides background on job lock and the ACA's effect on labor markets and explains the contribution this paper makes to existing literature. Section 4 discusses the model's data to include a discussion of its unique usefulness, its potential shortcomings, and the reasons for its design. Section 5 details our empirical model, the assumptions that underlie the model, and ways in which we satisfy these assumptions. Section 6 discusses results and is broken into subsections that present the main results, the heterogeneous treatment effects, and results from placebo tests. Section 7 summarizes results from our model for the effect of the ACA on uptake of the Post 9-11

GI Bill. Section 8 discusses the results and their meaning in the broader context of national security and the labor market. Finally, a summary of the paper and the potentials for further research concludes the paper.

2 U.S. Army Labor Market

Our contribution to the literature on the dependent mandate and job lock is due in large part to U.S. Army soldier data's unique ability to measure individuals labor market decisions. It is therefore imperative that we provide a proper understanding of both the U.S. Army and its unique labor market. The U.S. Army is composed of two distinctly different groups of employees, officers and enlisted soldiers. The Army requires that enlisted soldiers have a high school degree or equivalent, though 7.1 percent of enlisted soldiers and non-commissioned officers have bachelor's degrees or higher (Bureau of Labor Statistics, 2015). Additionally, enlisted soldiers must be between 17 and 35 years old when they enlist. Both officers and enlisted soldiers must meet baseline physical and medical requirements before entering the military. These requirements create a population with relatively similar health care "needs" upon entry. Those with chronic health conditions that drive up health insurance costs like cancer, asthma, or diabetes are not admitted or retained in the Army.

Enlisted soldiers have two basic divisions: junior enlisted (comprised from ranks of E1 to E3) and non-commissioned officers (E4 and above). Upon entering the Army, they will be privates, after which they will receive promotion to E3, and then specialists. Privates and specialists are known as junior enlisted and qualified junior-enlisted soldiers are promoted to the ranks of non-commissioned officers, beginning at sergeant and ending at Sergeant Major of the Army. Non-commissioned officers supervise lower-enlisted soldiers and ensure the soldiers carry out officers orders. Enlisted soldiers cannot advance into officer ranks without leaving and attending officer candidate school, ROTC, or the United States Military Academy at West Point. One difference between enlisted soldiers and officers is that officers do not sign the same

contracts as enlisted soldiers. For this reason, we exclude officers from our data.

Branches, or occupational lanes, exist in both officer and enlisted ranks. There are 17 branches ranging from combat arms branches such as armor and infantry to logistic branches such as quartermaster and transportation. With relatively few exceptions, soldiers maintain membership in their branch for the duration of their career. While civilian jobs vary from employer to employer, jobs within each branch are relatively uniform across the Army for a given rank. Thus while the tasks that infantry soldiers and helicopter mechanics perform certainly differ, the designators assigned to each soldier's file allow us to create controls that account for the differences in careers across the military. Furthermore, the branch in which each soldier serves helps control for many of the differences in compensation that exist within the Army due to things such as hazard or flight pay.

When enlisted soldiers join the Army, they sign contracts that are set for specific terms of service. Upon completion of the contract, the Army will either discharge the soldiers or give them an offer to reenlist for another term of service. With rare exceptions made for issues such as medical problems, poor performance, or misbehavior, soldiers cannot leave the Army prior to finishing their contracts. These term contracts offer a unique way to examine soldiers' labor market decisions in way that private sector data cannot replicate. Because soldiers must make their decisions to reenlist at dates determined several years in advance, term contracts force soldiers to uniformly evaluate compensation and opportunity costs and make a decision to reenlist or not. This eliminates problems inherent in civilian workforce data where employees may never have to make a decision to leave or stay and timing for leaving or quitting jobs is endogenous.

Two of the largest differences between the Army's labor market and much of the civilian labor market are the Army's personnel structure and defined benefit retirement system. Unlike private firms, the Army does not hire individuals from outside the military to fill upper level enlisted and officer positions except for chaplains, lawyers, doctors, and dentists (Tilghman, 2016). This restriction on lateral entry makes the Army more sensitive to losing top talent, as they cannot replace it with outside hires. Lateral entry's absence in the U.S. Army also explicitly limits

the number of individuals that contend for promotion to the soldiers and officers who are already in the Army. As soldiers ascend within the enlisted ranks they obtain further training on skills and issues specific to the military. Oftentimes it is difficult to transfer this training to the civilian sector, which may cause soldiers to calculate a lower opportunity cost as their military experience increases due to the cost of training and education for civilian-sector employment.

The Army's retirement benefits also contrast with many of the private sector's retirement plans. The Army's retirement system from 2007-2013 was a defined benefit system that gave Army soldiers a percentage of their pay and benefits if they served for 20 years or longer in the Army. Prior to this 20 year deadline the Army provided no retirement benefits. If all other factors remain constant, the defined benefit retirement system decreases the opportunity cost for reenlistment the closer that a soldier gets to their twentieth year in service. Because soldiers' experience within the Army may decrease the opportunity cost for reenlistment, our data excludes soldiers higher than the rank of sergeant, or E-5. We assume that this limits our sample to soldiers with relatively similar experience levels across both treatment and control groups.

Another notable aspect of the Army labor market is the diversity of motivations among soldiers. The U.S. Army has a sizable portion of soldiers who, due to intrinsic motivations, will serve with little fungible compensation. There are others in the Army who are motivated to serve but nonetheless carefully calculate their opportunity costs and are sensitive to changes in compensation. There are others outside the Army who will not enter military service even if the government offers an extremely generous compensation package. Wardynski, Lyle and Colarusso (2010) assert that this creates a unique supply curve for Army soldiers that changes from a linear function to an S-shaped curve. While many in the Army are keenly aware of changes in benefits and costs, others will serve despite relatively drastic changes in benefit packages. Other professions, such as teachers and fire-fighters, have similar labor supply functions due to the utility they derive from the job itself. The dependent mandate's effect is likely higher in industries and jobs where there are not a high proportion of intrinsically motivated employees, and where utility depends almost entirely upon compensation in the form of pay and benefits.

The United States Army's success as an organization depends on its ability to retain and recruit high quality soldiers. The Army stated in its budget submission that improving economic conditions, reduced incentives and tightened policy restrictions are proving to be significant challenges to meeting mission goals. The Army also reported that the recruiting campaign for fiscal year 2015 saw the "smallest delayed entry pool in seven years" Tice (2016). The dependent mandate's potential to decrease Army health care's value further reduces incentives and makes retention and recruitment more difficult. Understanding how the dependent mandate affects soldiers decisions to reenlist helps determine the value that soldiers place on the medical benefits that the Army offers and help guide policymakers efforts to build better compensation packages to better recruit and retain soldiers.

3 Background on Job Lock and the ACA Dependent Mandate

3.1 Job Lock

To mitigate problems with moral hazard, the traditional individual insurance market makes insurance prohibitively expensive for individuals with chronic illnesses and other high risk profiles. Until the Affordable Care Act's passage, employee provided health insurance was the only option available for many people to obtain affordable health insurance. Pooling large employee groups together brings down the average costs and allows otherwise uninsurable individuals access to health care. For many, this makes the employer provided health care plan's value significantly lower than the cost to purchase insurance in the individual market. The theory behind job lock predicts that because some employees worry they cannot afford health care plans in the individual market and believe that they are increasingly less likely to find a new job that provides health insurance, they calculate the opportunity cost of staying in their job as relatively low and become locked into those jobs.

In theory, job lock affects labor supply decisions in three ways. First, it discourages individuals from entrepreneurial ventures due to their consequent need for individually purchased

insurance. Second, it encourages employees to stay at a job even if a job for which they are a better match is available in the labor market. This effect may also drive people into the labor force who would otherwise retire or choose not to participate in the labor force. Third, it may increase individuals participation in the labor market on the intensive margin because they must obtain full time status to qualify for employer provided health insurance. Because the Army is not a profession that offers hourly rates, this paper does not analyze job lock's effect on the intensive margin.

Empirical findings do not unanimously support job lock's theoretical foundations. Several papers examine differences in job turnover rates between employees whose spouses have insurance coverage and those whose spouses do not Madrian (1994). These scholars find that employees with insurance coverage through their spouse are between 12 and 16 percentage points more likely to leave their jobs than those whose spouses do not provide coverage. Monheit and Cooper (1994) use variables such as job experience and education to estimate the likelihood that individuals will be able to find a job that provides health insurance and then regress job turnover on this likelihood variable. This model finds that the likelihood of gaining insurance is negatively correlated with the likelihood of staying in a job. Considering young adults lower educational levels and work experience, the findings of Monheit and Cooper (1994) suggest job lock may be especially strong among this group.

However, other scholars findings suggest that employer provided health insurance does not affect individuals labor supply decisions. Holtz-Eakin (1994) examines one and three year transition rates using Madrian (1994)s spousal coverage strategy but find no significant difference between those whose spouses have insurance and those whose spouses do not. However, several issues exist with workforce data that pose problems for scholars measuring job lock. First, it is not clear with most data whether employees left voluntarily, felt forced to leave, or were laid off. Because the firm's choice of when to hire and the employee's choice of when to quit are normally endogenous, it is difficult to isolate what brought about these decisions. Army data makes this an easier task due to the term contracts that Army soldiers sign. While the soldier decides whether to

accept an offer of reenlistment, neither the soldier nor the Army can decide when the soldier will make that decision. That is determined years prior when the soldier signs their initial contract.

3.2 The ACA Dependent Mandate

Previous research about the ACA dependent mandate finds that despite the increase in insurance coverage, the dependent mandate did not increase young adults preventive care utilization. It did, however, increase the probability that young adults reported excellent self-assessed health (Barbaresco, Courtemanche and Qi, 2015). However, Depew and Bailey (2015) find that the dependency mandate did increase premiums for the young adult's parent's health insurance by 2.5-2.8 percent. Thus, while evidence suggests the mandate does not increase young adults actual health care usage, it may nonetheless cause young adults to feel more confident about their personal health. These findings may imply that for young adults, the marginal utility received from increases in insurance quality sharply diminish after they initially receive the insurance. This observation is important for policymakers and employers, including the U.S. Army, who try to craft compensation packages that match cost with perceived employee benefit.

Empirical evidence also suggests that the dependent mandate influenced young adults behaviors beyond health care and health insurance. Abramowitz (2016) finds that the dependent mandate influenced young adults to forgo marriage and increase cohabitation at higher rates. Abramowitz (2016) asserts that this is because young adults no longer depend on a potential spouse's insurance plan to obtain health care coverage, which consequently decreases cohabitation's opportunity cost. Abramowitz (Forthcoming) finds that the ACA dependency mandate also reduces the likelihood of giving birth and increases use of long term hormonal contraception. If expanded insurance coverage options drives individuals to change marriage and fertility decisions, it is likely that increased this coverage may affect individuals other opportunity cost calculations.

Specifically, we question how insurance consumption changes affect young adults labor supply decisions. Previous research on this topic finds evidence that the higher uptake in parent

insurance after the ACA's passage is associated with greater flexibility in the labor market. Depew (2015) finds that the number of hours that individuals worked on average decreased slightly as a result of the expanded dependent health insurance coverage. Because the cost of buying insurance is no longer a potential consideration for young adults, those young adults have become more mobile and their labor market less rigid. Army soldiers who come to the end of their term contracts face the decision to reenlist or find another job. If the civilian job market's flexibility rises because the opportunity cost of staying in jobs rises, then it stands to reason that the Army labor market's flexibility would increase as well as the opportunity cost of reenlisting rises.

The ACA's dependent insurance provision is an especially useful exogenous shock due to the conditions surrounding the law's passage. After months where the ACA's outcome was unknown, Senate Democrats passed the bill using a technical measure known as reconciliation. Because the uncertainty lasted until the ACA's final passage, it is unlikely that people's behaviors anticipated the law's various changes because no one believed the ACA's passage was imminent. Furthermore, Antwi, Moriya and Simon (2013) highlight how unlike many other provisions in the law, the parent provision went into effect at the first insurance renewal date after the law's passage and did not wait for the Supreme Court's 2012 decision in *National Federation of Independent Business v. Sebelius* upholding several of the ACA's other aspects.

While previous literature analyzes the ACA's effect on individual behaviors ranging from health care utilization to cohabitation rates, this paper adds to existing literature with a unique ability to assess the magnitude of job lock in the labor market. This paper is the first to look at the ACA's effect specifically on the armed forces. It therefore is the first to specifically analyze the value that soldiers place on health care benefits when they calculate the opportunity cost for staying in the Army. However, the paper's contributions go beyond the Army. While the Army's unique demographic and job features limit our ability to translate our findings to the civilian population as a whole, evidence of job lock in the Army suggests that job lock exists outside the Army as well. Because the Army's term contracts force soldiers to assess whether they will choose to stay in or leave the service, they provide a compelling population to study how

employees value their compensation and provide further support for policymakers looking to increase access to health care as a way to decrease friction in the labor market.

4 Data

This paper uses US Army administrative data from the Office of Economic and Manpower Analysis at West Point that includes soldier characteristics and their decisions whether or not to reenlist in the Army once their initial contract ends. The data include US Army soldiers ages 23-25 and 27-29 from years 2007-2009 and 2011-2013 who are on their first Army contract. Army ranks included in these data are private (E1-E3), specialist (E4), corporal (also E4), and sergeant (E5). As we discuss in Section 2, the data exclude all officers and enlisted soldiers above sergeant due to differences in contracts, opportunity costs, and motivations to reenlist. We also exclude anyone from our model whom the Army did not offer a reenlistment option; including people who are forced to leave the military introduces people into the model who are revealing nothing about their labor supply decisions.

For our empirical model, we use the same age ranges and year groups as (Barbaresco, Courtemanche and Qi, 2015) and Abramowitz (2016). Soldiers in our age range do not go below 23 or above 29 to limit the unobservable differences between treatment and control groups. Furthermore, some states already had dependent mandate laws for individuals younger than 23. Age 26 is excluded to clearly separate treatment and control groups. Our data includes soldiers who chose to reenlist from 2007 through 2013. For the same reasons as Barbaresco, Courtemanche and Qi (2015), we exclude data prior to 2006 to decrease the likelihood that macroeconomic shocks will sway our sample's job decisions. Depew (2015) cautions against using data for years prior to 2007 because the Great Recession affected younger people more than older people and thus increases the risk of introducing contemporaneous time trends into the data. The data fail to account for whether or not the soldiers parents have health insurance, which would inherently affect a choice based on health insurance coverage. The dependent mandate

would not apply to those soldiers whose parents do not have insurance that they can potentially use upon leaving the Army.

Table 1 displays summary statistics for the observed enlistment contracts in our sample. We observe that, conditional on being offered re-enlistment, we find that 54 percent of soldiers do re-enlist and remain in the Army. We also find that a majority of our sample is of rank E-4 (specialist or corporal) who are the most junior non-commissioned officers. Another 23 percent of our sample are of rank E5 (sergeant).

Not surprisingly, given our identification strategy, the average age of of sample is 24.86 years. Our sample is also representative of the Army as a whole with 67 percent of the soldiers being white, fifteen percent being black, and twelve percent Hispanic. The soldiers are in our sample are also 87 percent male. The education level of our sample is also representative of the Army given that a soldier must have at least a high school degree to enlist, but those with a four year college degree are more likely to receive as a commission as an officer. In our sample, 74 percent of soldiers have only a high school degree and 13 percent hold a GED. However, our sample does show that three percent of soldiers have a four year degree.

Finally, family status is important for this study since being in the Army, allows the entire family to have health insurance, but if a soldier was to leave the Army and go on to her parents' insurance, then the soldier's spouse and dependents would no longer be insured. In our sample, 48 percent of soldiers have been married with, on average, one dependent.

Table 2 shows covariate balance for variables before and after the ACA and across both time periods by treatment and control groups and in the Army as a whole and the differences in the rates of change between the two groups before and after President Obama signed the ACA. Standard deviations are included in parentheses under the means. Both groups have relatively similar reenlistment rates with 58 percent of soldiers reenlisting before the ACA in both treatment and control groups. This drops to 53 percent for the treatment group and 55 percent for the control group after the ACA's passage. All control variables means and standard deviations have similar changes across time periods and especially among demographic variables. The difference

in college graduates is notable: almost no one in the treatment group has a college degree and while over 10 percent of the soldiers in the control group do. This is understandable due to the time that older soldiers have had to complete college degrees.

These groups are balanced on observable covariates included gender, race, and demographics. Demographics that are different are understandable since we are comparing a younger group (23-25 year olds) to an older group (27-29 year olds). We find that our control group is more likely to have more dependents. However, differences between groups are only problematic if the changes in those differences over time are dissimilar. We assume that the differences are constant from 2007-2013, and that these differences within this age band are minimal enough to not significantly affect reenlistment rates.

Figures 1 and Table 2 provide preliminary evidence that our assumption of parallel trends holds. Figure 1 displays reenlistment rates for soldiers who were offered a choice to reenlist, and shows a distinct downward shift starting at 2010 for younger soldiers. Table 2 calculates the differences in the differences of means between treatment and control groups before and after the ACA's enactment. This table demonstrates that the differences between these groups across several variables changed at the same rate from 2007-2013, providing support for our parallel trends assumption. To further account for these differences, we control for several factors that may differ between these two groups, including education levels, numbers of dependents, and marital statuses. Though we cannot draw any causal estimates from this graph or the calculations in Table 2, it provides preliminary support for our hypothesis that the ACA decreased reenlistment rates among young enlisted soldiers.

5 Econometric Methods

To estimate the causal effect of the Affordable Care Act's dependency mandate on job lock with a difference in differences estimator:

$$Reenlist_{ist} = \beta_1 Treat_i + \beta_2 Post2010_t + \beta_3 T_i P_t + a_i X_i \alpha_s + \varepsilon_{ist} \quad (1)$$

where *reenlist* is the probability of reenlisting for an individual, *i*, with home state of record state, *s*, in year *t*. *Treat_i* is a dummy variable that indicates whether a soldier is in the 23-25 year old treatment group or the 27-29 control group. *Post_t* is a dummy variable that indicates whether or not the observation falls in the period before or after the ACA's passage. β_3 is the difference-in-differences coefficient of interest that estimates the causal effect of the dependent mandate on the treatment group's reenlistment rates.

The matrix X_i contains exogenous control variables for a soldier's demographics. we include these variables since there are observed differences associated in reenlistment rates between races, ages, gender, a soldier's number of dependents, their marital status, and their education level. All of these factors influence the soldier's opportunity cost of staying in the Army. A soldier with a larger family, for instance, may be less likely to accept the risk associated with leaving the Army. Married soldiers may also not face the same medical insurance restraints as single soldiers before the ACA because they could obtain coverage through their spouse.

The variable X_i is a vector of Army control variables that influence soldiers opportunity costs for reenlisting. These include AFQT score, branch, rank, and contract terms. An AFQT score is a base measure of intelligence that soldiers are given upon their first enlistment. A soldier with a higher AFQT score or a branch more related to civilian employment would most likely find a job more easily outside the military. Branches within the Army are assigned when they first enlist and determine the type of work a soldier will do within the Army. Branches range from front line combat jobs such as infantry, armor, or field artillery, to cyber operations and logistical supply chain support. Because the human capital that soldiers receive in each branch is different, a soldiers branch may influence their marketability outside the Army.

Causal estimates in our model depend on satisfying assumptions of parallel trends between control and treatment groups to ensure that our estimate on the interaction coefficient β_3 is an effect of the shock and not some other unobserved factor. This means that we must assume

that if congress did not pass the ACA, the differences between treatment and control groups in 2007-2009 and 2011-2013 would have been the same. The restricted age range for the treatment and control groups limits the differences that may occur between the two groups due to economic or social changes. The relatively small differences in Table 2 for our control variables offers evidence that this assumption holds. Figure 1 shows the trends for reenlistment in both control and treatment groups and shows a similar trend prior to 2010 followed by slightly higher reenlistment rates for the control group, offering further support of counter-factual parallel trends.

6 Results

Table 3 presents the difference in differences estimates for the effects of the ACA's passage on the enlistment rates of soldiers age 23-25. We use several models that include various soldier characteristics to analyze the interaction coefficient's stability and ensure that our estimates are not dependent upon other factors that may affect soldiers labor market decisions. Following a discussion of our results we run several two placebo tests that shift the treatment group and the treatment date to investigate whether or not the estimates may be due to unobserved time or age trends that occur independent from the Affordable Care Act's passage. Our results indicate that the dependent mandate decreased the treatment group's reenlistment rate.

6.1 Primary Results

Table 3 shows the results for regressions across four models that include various controls for soldier. Column 1 is a naive regression that includes a dummy variable that indicates whether a soldier is in the treatment group, a dummy variable that indicates whether the soldier's reenlistment decision occurred after the ACA's passage, and a variable that interacts these two dummy variables. Column 2 introduces exogenous dummy variables for soldiers demographics. Column 3 introduces soldiers endogenous personal characteristics. This model controls the soldier's level of education, the soldier's rank, the soldier's branch within the Army, the soldier's

marital status, and the soldier's number of dependents. Finally, model 4 includes dummy variables to control for the soldier's state home of record.

All regressions in Table 3 are conditioned on whether a soldier had a choice to reenlist in the Army at the end of their contracts. The results are for years 2007-2013 and include 2010. Because we identify reenlistment decisions by the month of the contract, we make April of 2010 the first month in the treatment period because this is the month after President Obama signed the ACA. The interaction term in our equation provides the causal estimate of the dependent mandate's effect on the reenlistment decisions of soldiers younger than 26. Column 1 shows the naive regression estimate of $-.024$, interpreted as a 2.4 percentage point decrease in reenlistment rates for the treatment group. The coefficient on the interaction is highly stable across all models, deviating only by .3 percentage points across four columns. The interaction term's coefficient in column 4, which includes all soldier and state level controls, indicates that the ACA's dependent mandate caused a 2.7 percentage point decrease in reenlistment rates among soldiers age 23-25. Because 53 percent of soldiers offered reenlistment accepted the offer in 2013, the model's estimate translates to a 5.1 percent decrease in soldier reenlistments in the treatment group.

The interaction term's stability across all models indicates that while there are other determinants that may influence a soldier's reenlistment decision, the ACA dependent mandate's effect on young adult soldiers decisions is independent of those other determinants. This also suggests that potentially omitted variables only have a negligible effect on the dependent variable's explanatory power because the interaction term is orthogonal to these omitted variables. These results indicate that the dependent mandate increased the opportunity cost of reenlisting and induced a significant portion of soldiers to decline their reenlistment offers. These findings support the theory that an increase in health insurance availability decreases job lock among young soldiers and improves labor market flexibility. We run placebo tests to validate our model and ensure that the dependent mandate, and not contemporaneous time trends, is the source of our model's variance.

6.2 Heterogeneous Treatment Effects

We test for heterogeneous treatment effects across gender, race, and education levels to examine whether specific populations within our data respond differently to the ACA dependent mandate. We specifically examine different racial, gender, and education levels for heterogeneous treatment effects. To test for results specific to these populations we run our final regression model with all controls and condition it specifically on race, gender, and finally on education levels. Because we cannot compare these regressions to results from the original regression, we run a triple difference regression to estimate the degree to which each population drives our primary estimate. It benefits the Army to understand the responses that different demographic groups have to different types of compensation. To achieve this goal, the Army must understand what drives different populations to join and stay in the Army. Several theoretical mechanisms may contribute to differences in responsiveness to the dependent mandate across demographics. For instance, scholars find risk aversion among females tends to be lower than males (Watson and McNaughton, 2007; Jianakoplos and Bernasek, 1998). These characteristics may contribute to a higher propensity to remain at a secure job like the Army regardless of an increase in outside health insurance benefits. Insurance coverage rates among different populations may also contribute to differences in responsiveness. The portion of non-elderly white adults participating in private insurance plans before the ACA was over 40 percent higher than non-elderly blacks (Duckett and Artiga, 2013). If young black soldiers are less likely to have parents with private health insurance plans, they will be less responsive on average to the dependent mandate's effects.

The Army also has an interest in retaining its most educated soldiers. The modern battlefield is layered with cultural and political complexities that require both soldiers and officers at every level to learn about and adapt to new environments in new ways. Higher levels education levels may allow individuals to utilize their health insurance more effectively and thus make them more responsive to increases in health insurance availability (Courtemanche, Marton and Yelowitz, 2016; Grossman, 1972). The opportunity cost to reenlist may also be lower for soldiers with lower education levels due to few opportunities available to them outside the Army.

Determining these mechanism's reality and magnitude helps the Army recruit and retain talented and educated soldiers.

Table 5 displays the results of our primary regression model with all controls conditioned on race, gender, and educational attainment. The interaction term's coefficient shows the responsiveness to the ACA's dependent mandate within each subpopulation. Conditioning on race only provides a statistically significant result for white soldiers, though the decreased observations may account for increased standard errors in Black and Hispanic regressions. Similarly, only males show a statistically significant response to the dependent mandate. Given the theory behind these regressions, it stands to reason that whites and males are more responsive to the mandate and drive the primary results. However, the regressions do suggest that education levels affect individuals responsiveness to the dependent mandate. Specifically, they suggest that individuals are more responsive to the dependent mandate as their educational attainment increases. When we limit the regression to only college students the effect is an 8.3 percentage point decrease in reenlistment rates, while among high school graduates and lower the effect is only 1.3 percentage points.

One concern about our results is whether young soldiers are cognizant of health insurance. One way to test the saliency of the TRICARE benefit would be to compare results for those soldiers who has a spouse or dependent. These results are helpful to assess the saliency of health care benefits. Spouses and children of soldiers can have access to TRICARE benefits for an additional fee. Thus soldiers with spouses or children may be more cognizant of losing health care benefits if they were to leave the military, and may be less likely to leave without some access to alternative health insurance. Table 4 displays results condition on whether the soldier had ever been married or had dependents. We find that married soldiers are 3.2 percentage points or (5.29 percent) more likely to leave the Army when given the option to return to their parents' health insurance. We find that single soldiers are only 0.9 percentage points more likely to leave (a result that is not statistically significant). We also find that soldiers with dependents are 3.5 percentage points (or 5.53 percent) more likely to leave the Army when they can use their

parents' health insurance. Soldiers without dependents are 0.7 percentage points *more* likely to stay in the Army (albeit this result is not statistically significant). These subsample analysis show that married soldiers or those with dependents are driving our main results; mainly because they are, arguably, the population to whom health benefits are the most salient.

However, it is not correct to compare the results from these regressions because the sample sizes differ and because the proportion of each that belong to the treatment and control groups are not the same. To account for this we run a triple difference term in our regression to understand how responsive each group in relation to the sample as a whole. Table 6 displays the results for these regressions. The race and gender results corroborate the previous regressions findings and suggest white males are the most responsive to the dependent mandate. The high school or lower term's regression also confirms the previous regression's finding and indicate that those with a high school degree or lower are not as responsive to increased insurance availability as those with some college or a college degree.

6.3 Placebo Tests

We conduct placebo tests to ensure characteristics that are unrelated to the ACA and that are unique to our year and age groups do not produce our causal estimate. The difference in difference strategy assumes that only the union between the soldier's age and the year of the policy change drive the interaction term's estimate. These placebo tests are designed to determine whether or not there are contemporaneous effects with the years and age brackets that we use influencing our results. Threats to our identification include contemporaneous policies, changes in troop levels due to the military draw-down in Iraq and Afghanistan, or macroeconomic trends . We address these concerns by constructing two placebo regressions. First, we change the enactment year to 2008 and only consider years before the the passage of the ACA. Second, we increase the treatment and control group age ranges to follow the method proposed by Slusky

(2017).⁴ The logic behind these placebo tests is that if just the year or age range drive our results, and not the union between the two, then it is highly unlikely that our results are the product of the dependency mandate of the ACA as opposed to trends not related to the policy.

First, we use a placebo test that shifts the enactment date to 2008; prior to the date President Obama signed the law. We only consider years of data before the passage of the ACA to ensure a true placebo. This test determines whether there are factors that occur across years that drive down enlistment rates at an increasing rate for younger soldiers and are unrelated to the dependent mandate. Second, we shift the age ranges for control and treatment groups up by four years each to make the treatment group enlisted soldiers age 26-28 and the control group enlisted soldiers age 30-32. This test determines whether or not there are trends driving older soldiers to reenlist at an increasing rate during the time period we specify. For the placebo tests, we run one regression that includes the altered age range, and another that includes the altered year range. Both regressions include all controls in Column 4 of Table 3.

The results from the placebo tests are shown in Table 7. For both of these regressions, the coefficient on the interaction term has the same sign and is more than two times smaller than the causal estimate in Table 3. Furthermore, neither estimate is statistically significant. These results indicate that aspects of the years and age groups that we chose are not driving our results. We can therefore conclude that there were parallel trends between the two groups prior to ACA's passage. These results are evidence of our identification assumptions our model and shows that the estimates are due to the ACA's dependent mandate and not to other contemporaneous effects related to the age and year range we specify.

7 Results for Post 9/11 GI Bill Uptake

Our results show that the dependency mandate made it more difficult for the Army to retain young adults. While this result may show that recruitment and retainment costs may increase for

⁴(Barbaresco, Courtemanche and Qi, 2015), Depew (2015), and Abramowitz (2016) all use a similar placebo method to test the robustness of their respective estimates.

the military (and perhaps other firms), it is unclear whether the portability of health insurance will lead veterans to better long run outcomes. Since, the passage of the ACA is still relatively recent, it will be difficult to measure its effects of some outcomes such as career satisfaction, mid-career wages, etc. One outcomes that would be a good proxy for an increased career path is whether a veteran attends college. Since most enlisted soldiers have only high school diplomas; college attendance would indicate whether availability of health insurance increases education opportunities and thus, arguably, increased labor market outcomes.

One good indicator of college enrollment among veterans is whether the veteran used her Post 9/11 GI Bill benefit. Signed by President George W. Bush in 2008, the Post 9/11 GI Bill was one of the largest expansions of federal financial aid. The bill eliminated the need for veterans to opt into the GI Bill and removed requirements of service members to make contributions to the GI Bill while on active duty. The bill also made every military member who had served at least three years after September 11, 2001 eligible for four years of college tuition including a monthly stipend and housing costs. Also, the Post 9/11 GI Bill allowed veterans to transfer these benefits to a spouse or children.

We test this hypothesis by merging our sample with data from the Department of Veterans' Affairs (who administer the GI Bill) and re-estimate the same specification as previously. In these data, we can observe which soldiers used the GI Bill and the amounts that the VA paid on their behalf to institutions. We code GI Bill usage as a one if the VA expended positive amounts of aid and a zero otherwise. As before, we include various demographic information and state fixed effects to control for state level, time in-varying characteristics such as scholarships for veterans or generous merit aid programs.

Table 8 contains estimates for the effect of the dependency mandate on Post 9/11 GI Bill usage. Column 1 displays a naive regression with only an indicator for a soldier begin between 23-25 years old, an dummy variable for the policy change, and the interaction effect. Using this specification, we estimate that soldiers who have access to their parents' health insurance are one percentage point more likely to use their GI Bill benefits. In our sample, we observe that 53

percent of soldiers use these benefits, so our point estimates translate to around a 2.1 percent increase. Columns 2-4 show that our estimate is robust to adding state home of record fixed effects, exogenous demographic controls, rank fixed effects, and occupational branch fixed effects.

While more longer run outcomes would be nice, these outcomes are currently not feasible since the ACA is still relatively new. However, our results show that the ACA did encourage more veterans to attend college. These results are also helpful to assessing the social welfare of the dependency mandate of the Affordable Care Act. Since our job lock results show that the ACA did reduce the number of soldiers remaining in the Army, it does appear that policy change does help veterans attain more education after leaving. Thus the dependency mandate (and the corresponding increased portability in health insurance) may increase recruiting and retention costs for employers, but increase potential wages for the worker.

8 Discussion

Our results have important implications for the Department of Defense and the literature on job lock and the Affordable Care Act. The results indicate that job lock due to health insurance was a real issue affecting Americans younger than 26 in the U.S. Army before the ACA's passage. Absent the dependent mandate, five percent of soldiers would have remained in the U.S. Army, presumably because they calculated that their opportunity cost for staying in the Army was relatively low. This result signals to elected officials and military leaders that the Department of Defense must reevaluate its recruiting and retention tools because the ACA dependent mandate changed young soldiers opportunity cost calculations. While our result's external validity is limited, it is likely that the labor market as a whole also saw increased mobility for younger Americans. This evidence's findings of increased mobility on the extensive margin compliments previous work that found increased mobility on the intensive margin Depew (2015); Courtemanche, Marton and Yelowitz (2016).

Causal estimates rely on the assumptions that our data is free of measurement error and that our interaction term is uncorrelated with other potential determinants of reenlistment. It is unlikely that there is measurement error in our data since Army professionals collect the soldiers data upon entry and the Army and soldiers update the information frequently. The model's limited time frame and age range ensure comparability of the treatment and control groups. Our model's stability in Table 2 further supports the assumption that soldiers responses to the dependent mandate are orthogonal to other potential determinants of soldiers reenlistment decisions. However, our model may have attenuation bias as we are unable to obtain data on whether or not a soldier's parents have insurance. Because we include soldiers in our data whom the Affordable Care Act's dependent insurance provision did not affect. Because those soldiers who could not get onto their parent's insurance will be more likely to reenlist than those who can, *ceteris paribus*, including younger soldiers whose parents do not have insurance in the data is not appropriate. Because it is impossible to exclude soldiers whose parents do not have insurance, we believe that the interaction term's coefficient has attenuation bias and the estimates are lower than the true effect.

Our ability to assert causality when discussing the ACA's dependent insurance provision and soldier reenlistment rates also depends on satisfying that parallel trends exist between the control and treatment groups. We also must satisfy that the treatment was in fact exogenous. Based on the differences in Table 2 and the observable change in Figure 1, we believe that we satisfy the parallel trends assumption. We also believe that because of the Army's careful maintenance of soldier records measurement error is not a relevant concern. Because the ACA's sudden passage in a divided congress, we believe that we can establish that the shock was exogenous and that soldiers did not anticipate the ACA before Congress passed it. Taken together with the placebo test results in Table 6, these results suggest that the unique union between the treatment group and March 23, 2010, and not contemporaneous effects, drive our results. We validate our identification strategy, satisfy the parallel trends assumption, and find strong evidence that the dependent mandate's effect is orthogonal to other potential determinants of soldiers

reenlistment decisions. We therefore establish that the ACAs passage caused a 2.5 percentage point, or 5 percent decrease in soldier reenlistment rates.

A 5 percent decrease in enlisted soldiers reenlistment rates represents the loss of a sizable number of Army employees. From 2007 to 2013 our data indicate that the Army offered 109,943 soldiers ages 23-25. A 2.5 percentage point change in reenlistment rates represents 5,607 soldiers over this period who choose to leave the Army instead of reenlisting. Replacing these soldiers costs the Army millions of dollars in recruitment budget increases, basic training costs, equipment, and a loss of human capital. The Army's effectiveness depends largely on retaining soldiers who are technically proficient and who understand their organizational idiosyncrasies. Losing top talent is a greater threat to the Army's productivity and effectiveness because there is no lateral entry available to replace soldiers the Army loses. For instance, the army cannot recruit highly motivated and technically skilled civilians to replace a sergeant with five years experience. The Army must recruit and train new replacements starting at private.

Different demographics relative responsiveness to the ACAs dependent mandate offers policymakers an insight into how the mandate affects different populations. We find that white males drive the estimates in our model and that responsiveness to the mandate increases with educational attainment. Because minority populations sample sizes are significantly smaller than the white and male population, the insignificant results for these groups may be due to increased standard errors. The increase in responsiveness to the dependent mandate as education increases is should concern Army leaders and policymakers. Because they have better options outside the Army than soldiers with high school degrees or lower, it is not surprising that educated soldiers respond more to increases in reenlistment's opportunity costs. They are nonetheless a group that the Army needs to focus on as it seeks to recruit retain top talent. While we do not analyze recruiting data, it is likely that the dependent mandate also discouraged many talented and educated Americans from enlisting at all. Because the dependent mandate changed the costs and benefits associated with reenlisting and leaving the U.S. Army, the Army must improve compensation packages to stay competitive to recruit and retain top talent.

9 Conclusion

The Affordable Care Act's dependent provision was meant to increase social welfare and decrease financial threats to young adults (Goldman, 2013). While research shows that insurance coverage among young adults increased, it is less clear that this coverage improved health care utilization and outcomes (Barbaresco, Courtemanche and Qi, 2015). Furthermore, it seems that the law encourages young adults towards behaviors that may not improve society's overall wellbeing, such as lower marriage rates and decreased labor force participation on the intensive margin (Abramowitz, 2016; Depew, 2015). We expand on existing literature on the Affordable Care Act's dependent mandate through a study of how the ACA affects soldiers in the United States Army and their decisions to reenlist. This study helps understand the magnitude of job lock in the U.S. Army due to employer provided health insurance. It also helps understand how soldiers value their compensation so the Army can better tailor its recruiting and retention efforts to a new generation of recruits in a new economic and political climate.

We employ a difference in differences identification strategy that compares 23-25 year old enlisted soldiers with 27-29 year old enlisted soldiers in ranks of E-1 to E-5 before and after the President signed the ACA in 2010. We find that the Affordable Care Act's dependent mandate decreases soldier reenlistments among 23-25 year olds by 5 percent. We also find that white males drive our results. Empirical evidence suggests females may be more risk averse than males, which may lead to lower opportunity cost calculations. The black population in the United States has fewer individuals insured proportionally than whites. If the percentage of black soldiers whose parents have insurance is low, they may be less responsive to the dependent mandate. We also find that responsiveness to the dependent mandate increases with educational attainment. This is probably due to the greater opportunities available to educated individuals outside the Army.

The ACA dependent mandate's effect is most likely higher among the entire population of soldiers under the age of 26, though we only use this age group because some states already allowed children to remain on their parents insurance until their 23rd birthday. Nevertheless, this estimate represents an economically significant number of soldiers that the Army wants to retain

but who choose to take their talents elsewhere. Beyond losing valuable human capital, the Army must also spend money to train new recruits. These results show that the Army needs to adjust its appeal now that health insurance is no longer a strong selling point to many young adults. While the dependent mandate was intended to improve social welfare among young Americans, it has unintended consequences for the Department of Defense that affect the nation's national security and budgetary considerations. Losing talented soldiers makes the Army less prepared to fight future wars and costs the Pentagon resources to replace soldiers who decide to leave.

While our results may be discouraging for the Army, they may be positive for individuals and for the labor market as a whole. This provides evidence that the ACA decreased the frictions that job lock created in one segment of the labor market. To test whether portability of health insurance is welfare enhancing for the individual, we use data on Post 9/11 GI Bill usage as a proxy to whether a veteran attended college after leaving the Army. We find that younger veterans who have access to their parents' health insurance are three percent more likely to use the Post 9/11 GI Bill. These results combined with the 5 percent reduction in soldiers remaining in the Army, show that the dependency mandate may be costly for employers with increased turnover and decreased retention. However, the policy change may be beneficial for workers who may attend college at higher rates and pursue better job matches and more satisfying career paths.

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Table 1: Summary Statistics

	Mean	Standard Dev	Min	Max
Re-enlisted	0.54	0.50	0.00	1.00
E1	0.00	0.07	0.00	1.00
E2	0.01	0.10	0.00	1.00
E3	0.08	0.27	0.00	1.00
E4	0.68	0.47	0.00	1.00
E5	0.23	0.42	0.00	1.00
Age	24.86	1.89	23.00	29.00
White	0.67	0.47	0.00	1.00
Black	0.15	0.36	0.00	1.00
Hispanic	0.12	0.33	0.00	1.00
Male	0.87	0.34	0.00	1.00
GED	0.13	0.34	0.00	1.00
High School	0.74	0.44	0.00	1.00
Some College	0.07	0.25	0.00	1.00
College Grad	0.03	0.17	0.00	1.00
Graduate Degree	0.00	0.03	0.00	1.00
Ever Married	0.48	0.50	0.00	1.00
No. of Dependents	0.96	1.16	0.00	10.00
Observations	146,458			

Note: Data come from the Office of Economic and Manpower Analysis (OEMA) and reflect soldiers aged 23-29 whose first enlistment contracts expired between 2007-2013, and who the Army offered re-enlistment.

Figure 1: **Re-enlistments from Sample 2007-2013.** This figure shows the parallel trends of re-enlistment around the policy change. Our treatment group is soldiers aged 23-25 and our control group contains soldiers aged 27-29. This figure shows that re-enlistment rates were very similar before the passage of the Affordable Care Act, but diverged afterwards.

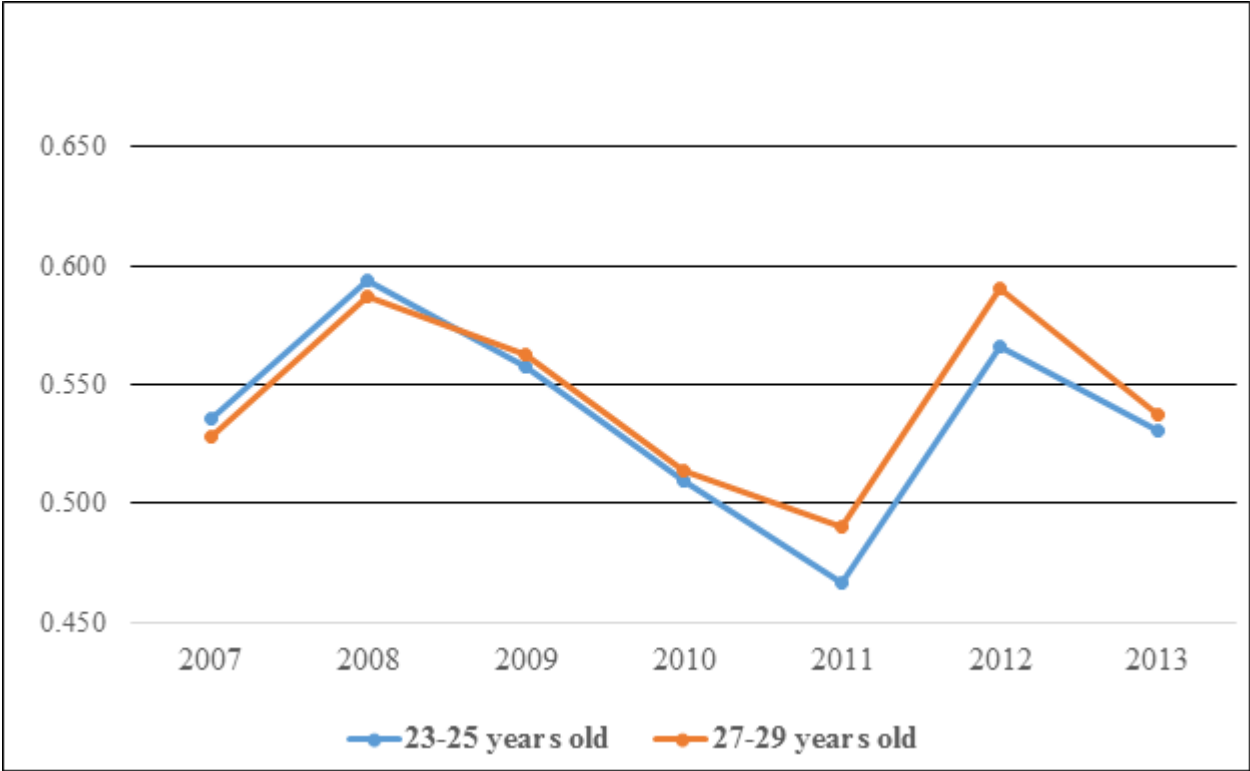


Table 2: Covariate Balance across Treatment and Control Groups

Variable	Pre-ACA			Post-ACA			Final Diff
	23 - 25 years old (1)	27 - 29 years old (2)	Diff (2) - (1)	23 - 25 years old (3)	27 - 29 years old (4)	Diff (4) - (3)	
Re-enlistments	0.56 (0.49)	0.56 (0.49)	0.00	0.52 (0.50)	0.55 (0.50)	0.03	-0.025
Age	23.86 (0.80)	27.81 (0.80)	3.95	23.85 (0.80)	27.8 (0.80)	3.95	0
Male	0.87 (0.33)	0.87 (0.33)	0	0.87 (0.34)	0.87 (0.34)	0	0
White	0.69 (0.46)	0.68 (0.47)	-0.01	0.67 (0.47)	0.66 (0.47)	0	0.003
Black	0.13 (0.34)	0.13 (0.34)	0	0.16 (0.37)	0.16 (0.37)	0	-0.002
Hispanic	0.13 (0.33)	0.12 (0.33)	-0.01	0.12 (0.33)	0.12 (0.32)	-0.01	-0.001
Number of Dependents	0.79 (1.04)	1.28 (1.36)	0.5	0.88 (1.06)	1.4 (1.39)	0.52	0.024
College Graduate	0 -0.06	0.11 -0.31	0.1	0 -0.07	0.1 -0.3	0.1	-0.001
High School Graduate	0.77 (0.42)	0.57 (0.50)	-0.2	0.79 (0.41)	0.58 (0.49)	-0.21	-0.006
AFQT Score	59.25 (19.27)	64.81 (20.98)	5.56	58.49 (19.03)	63.66 (20.33)	5.17	-0.39

Note: Columns 1, 2, 3, and 4 display means for treatment and control groups in the pre and post-treatment periods with standard deviation in parentheses. Final “difference” column report the differences in the differences in means for groups of 23-25 and 27-29 year olds over the period of 2008-2012. The first time period is prior to the Affordable Care Act (2008-2009) and the second is after the Affordable Care Act (2011-2012). We exclude 26 year olds to create a clear separation between treatment and control groups.

Table 3: Regression Results for Soldier Reenlistment

	(1) Reenlisted	(2) Reenlisted	(3) Reenlisted	(4) Reenlisted
23-25 Years Old	0.004 (0.006)	0.008 (0.006)	-0.066*** (0.008)	-0.064*** (0.008)
Post ACA	-0.018** (0.008)	-0.024*** (0.007)	-0.034*** (0.007)	-0.030*** (0.007)
23-25 Years \times Post ACA	-0.024*** (0.006)	-0.024*** (0.006)	-0.023*** (0.006)	-0.023*** (0.006)
State FEs	No	Yes	Yes	Yes
Exog. Controls	No	No	Yes	Yes
Rank & Branch FEs	No	No	No	Yes
Observations	146,639	146,639	146,639	146,453
R^2	0.001	0.017	0.071	0.099

Standard Errors Clustered at the State Home of Record Level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: Regression results in the interaction row estimate the Dependent Mandate's effect on reenlistment rates for soldiers ages 23-25 after the law passed in March, 2010. Demographic controls include ethnicity, gender, marital status and number of dependents. Education controls are for level of education attained. Army controls include soldiers' ranks, contract terms, and Army branch. In our sample, 54.27 percent of soldiers re-enlist conditional on the Army offering re-enlistment.

Table 4: Regression Results for Soldier Reenlistment-By Family Structure

	(1) Ever Married	(2) Single	(3) Has Dependents	(4) No Dependents
23-25 Years Old	-0.051*** (0.010)	-0.081*** (0.009)	-0.046*** (0.009)	-0.095*** (0.010)
Post ACA	-0.022** (0.009)	-0.044*** (0.009)	-0.002 (0.008)	-0.074*** (0.010)
23-25 Years \times Post ACA	-0.032*** (0.007)	-0.009 (0.008)	-0.035*** (0.006)	0.007 (0.009)
State FEs	Yes	Yes	Yes	Yes
Exog. Controls	Yes	Yes	Yes	Yes
Rank & Branch FEs	Yes	Yes	Yes	Yes
Mean Re-enlist	0.612	0.479	0.633	0.445
Observations	69,954	76,499	76,188	70,265
R^2	0.079	0.095	0.064	0.081

Standard Errors Clustered at the State Home of Record Level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: Regression results in the interaction row estimate the Dependent Mandate's effect on reenlistment rates for soldiers ages 23-25 after the law passed in March, 2010. Demographic controls include ethnicity, gender, marital status and number of dependents. Education controls are for level of education attained. Army controls include soldiers' ranks, contract terms, and Army branch. In our sample, 54.27 percent of soldiers re-enlist conditional on the Army offering re-enlistment.

Table 5: Heterogeneous Treatment Effects

Variable	(1) White	(2) Black	(3) Hispanic	(4) Male	(5) Female	(6) College	(7) High School
Post-ACA	-0.024** (0.006)	0.014 (0.012)	0.024** (0.014)	-0.0174** (0.005)	-0.022 (0.014)	-0.020* (0.011)	-0.029** (0.006)
23-25 years	0.077** (0.005)	0.062** (0.011)	0.039** (0.012)	0.0745** (0.004)	0.003 (0.012)	0.136** (0.012)	0.051** (0.005)
Post-ACA × 23-25 years	-0.032** (0.007)	-0.016 (0.014)	-0.031 (0.016)	-0.023** (0.006)	-0.022 (0.016)	-0.041** (0.016)	-0.013* (0.006)
Mean Re-enlist	0.504	0.700	0.563	0.540	0.558	0.575	0.530
R^2	0.079	0.046	0.081	0.106	0.082	0.093	0.096
N	98,221	21,967	18,103	126,965	19,493	36,091	109,377

Standard Errors Clustered at the State Home of Record Level

*** < 0.01, ** p < 0.05, * p < 0.1

Note: Regression results in the interaction row estimate the Dependent Mandate's effect on reenlistment rates for soldiers ages 23-25 after the law passed in March, 2010. Demographic controls include ethnicity, gender, marital status and number of dependents. Education controls are for level of education attained. Army controls include soldiers' ranks, contract terms, and Army branch.

Table 6: Heterogeneous Treatment Effects-Triple Difference

Variable	(1) Re-enlist High School or Lower	(2) Re-enlist Female	(3) Re-enlist Black	(4) Re-enlist Hispanic
Post-ACA	0.025 (0.009)	-0.016** (0.005)	-0.031** (0.006)	-0.015** (0.005)
23-25 years	0.146** (0.010)	0.071** (0.004)	0.064** (0.005)	0.068** (0.004)
Population × 23-25 years	-0.104** (0.011)	-0.044** (0.012)	0.014* (0.013)	-0.0165** (0.006)
Population × Post-ACA	-0.104 (0.011)	-0.032** (0.015)	0.036 (0.016)	0.052** (0.011)
Post-ACA × 23-25 years	-0.055** (0.014)	-0.024** (0.006)	-0.034** (0.007)	-0.023** (0.006)
Triple Interaction Term	0.046** (0.015)	-0.011 (0.017)	-0.009 (0.019)	-0.019 (0.014)
R^2	0.102	0.088	0.093	0.076
N	146,458	146,458	146,458	146,458

Standard Errors Clustered at the State Home of Record Level

*** < 0.01, ** p < 0.05, * p < 0.1

Note: We estimate Heterogeneous Treatment Effects on the various sub-populations to understand whether the soldiers leaving the Army are more/less likely to come from family backgrounds with health insurance. Demographic controls include ethnicity, gender, marital status and number of dependents. Education controls are for level of education attained. Army controls include soldiers' ranks, contract terms, and Army branch.

Table 7: Placebo Test Results

Variable	(1)	(2)
Variable	Placebo Enactment in 2009	Ages 28-30 and 32-34 with Placebo Provision for Ages 28-30
Post-ACA Indicator	-0.089*** (0.010)	-0.010 (0.008)
Treatment	-0.003 (0.007)	0.001 (0.007)
Post ACA × Treatment	-0.006 (0.008)	-0.009 (0.010)
R^2	0.102	0.0935
N	66,026	39,821

Standard Errors Clustered at the State Home of Record Level

*** < 0.01, ** p< 0.05, * p< 0.1

Note: Regression results in the interaction row estimate the Dependent Mandate's effect on reenlistment rates for soldiers ages 23-25 after the law passed in March, 2010. Regression condition indicates which population is included in the regression. Demographic controls include ethnicity, gender, marital status and number of dependents. Education controls are for level of education attained. Army controls include soldiers' ranks, contract terms, and Army branch.

Table 8: Post 9-11 GI Bill Usage

	(1)	(2)	(3)	(4)
	PGIB Use	PGIB Use	PGIB Use	PGIB Use
23-25 Years Old	0.047*** (0.006)	0.045*** (0.005)	0.024*** (0.008)	0.026*** (0.008)
Post ACA	-0.032*** (0.006)	-0.032*** (0.006)	-0.027*** (0.005)	-0.027*** (0.005)
23-25 Years \times Post ACA	0.010** (0.005)	0.011** (0.005)	0.011** (0.005)	0.011** (0.005)
State FEs	No	Yes	Yes	Yes
Exog. Controls	No	No	Yes	Yes
Rank & Branch FEs	No	No	No	Yes
Observations	146,639	146,639	146,639	146,453
R^2	0.003	0.009	0.024	0.028

Standard Errors Clustered at the State Home of Record Level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: We estimate the effect of the dependency mandate on uptake of the Post 9/11 GI Bill. Demographic controls include ethnicity, gender, marital status and number of dependents. Education controls are for level of education attained. Army controls include soldiers' ranks, contract terms, and Army branch.