

FORGING A NEW IDENTITY: THE COSTS AND BENEFITS OF DIVERSITY IN CIVIL WAR  
COMBAT UNITS FOR BLACK SLAVES AND FREEMEN

by

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**Forging a New Identity: The Costs and Benefits of Diversity in Civil War Combat Units for  
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**Abstract**

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We examine the role of peers, commanders, and travel on the later life outcomes of black slaves and freemen who fought in the Union Army. Because most of the black soldiers who served were illiterate farm workers, the war exposed them to a much broader world. In this sense, the Union Army can be viewed as a training program with heterogeneous treatment effects. In the short-run the combat unit benefited from company homogeneity as this social capital minimized shirking, but in the long-run men's human capital and information was best served by fighting in heterogeneous companies.

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# 1 Introduction

In the summer of 1862, two Union Army generals, acting without War Department authorization, formed the first black regiments from fugitive and contraband slaves and from freemen in Louisiana and the South Carolina sea islands. In 1863 the War Department authorized the recruitment of ex-slaves in the southern areas liberated by the Union Army and of freemen in the north. Men who enlisted faced the risk of death from disease and war and, particularly if they were freemen, lost wages and work experience. But, both former slaves and freemen could benefit from military service. Soldiers formed bonds with men from different places, traveled to different parts of the country, and sometimes even learned to read while in the army (Berlin, Reidy, and Rowland 1998: 38-43).

Soldiers' war experience varied greatly and depended upon their social interactions with their comrades and with their white commanding officers and upon where the regiment was sent. This paper uses a unique data set that allows us to observe soldiers' peers and officers and to trace the movements and battle experience of their regiment. Although black soldiers fought in segregated units, there was diversity within these units by place of birth and by slave status. Roughly one-quarter of black soldiers were free and these men fought not for their and their families' freedom, but for the right to citizenship. As Frederick Douglass said, "Once let the black man get upon his person the brass letter, U.S., let him get an eagle on his button, and a musket on his shoulder and bullets in his pocket, there is no power on earth that can deny that he has earned the right to citizenship."

A growing literature examines the costs and benefits of diversity. Greater diversity within a city allows for more trade, including trade in ideas (e.g. Glaeser, Shliefer, Kallal, and Scheinkman 1992), but, as emphasized by the social capital and management literature, within a community or an organization it also reduces individuals' willingness to provide or to pay for public goods and it diminishes their loyalty to an organization (see Alesina and La Ferrara 2004 for a review).

Studying the experience of black soldiers provides a unique opportunity to examine the trade-offs between diversity and homogeneity. From the military's perspective, a more homogeneous unit is preferable if it builds unit cohesion. In the short-run servicemen would prefer to serve with men from the same backgrounds. But, in the long-run, they may benefit from interactions with men from other backgrounds. This is particularly likely to be true for slaves because they were illiterate and had little experience of the world outside of the plantation. Similar issues arise in other settings. Bowen and Bok (1998) report that alumni from elite schools pointed to their social interactions in college as helping them to relate to members of different racial groups later in life.

The paper first examines how company diversity affected soldiers' loyalty to their units, where loyalty is measured by soldiers' willingness not to desert, go AWOL, or commit other disciplinary infractions. This is our main measure of the costs of diversity. A major benefit of diversity is learning from others' experience. Soldiers from a more diverse company could learn about life in different parts of the country and might be more likely to migrate. Established networks of previous migrants sustain migration flows by providing information and direct assistance in settling in a new area (e.g. Munshi 2003; Carrington, Detragiache, and Vishwanath 1996). The data allow us to examine the importance of contacts both to state migration and to the first black migration – that from rural to urban areas, including those within the south (Vickery 1977). Slaves brought into contact with free black men might be more likely to learn how to read and might be more likely to forge a new identity by abandoning their slave names. Contemporary observers wrote that former slaves fitted in Union blue were “completely metamorphosed, not only in appearance and dress, but also in character and relations” and that once in uniform “the *chattel* is a *man*” (quoted in Glatthaar 1990: 79).

## 2 The Black Military Experience

By the end of the Civil War, 186,017 men had entered the US Colored Troops, 26 percent of them from the free states, 22 percent of them from the border states, and 50 percent of them from the Confederacy. Roughly 78 percent of age-eligible black men in the free northern states served. The comparable figures for the border states and the Confederacy were 34 and 11 percent, respectively (Metzer 1981).

Companies' wartime experiences differed widely. Regiments formed in the last days of the war spent more time in reconstruction duty or were sent to Texas as an "Army of Observation" while Mexico was occupied by French troops.<sup>1</sup> In our sample regiments recruited earlier and regiments recruited in the Union were more likely to have commanders with abolitionist sympathies.<sup>2</sup> Such commanders were more likely to provide their men with formal educational opportunities (Berlin, Reidy, and Rowland 1982: 611-13). Fighting was also concentrated among relatively few regiments. During the war, black soldiers performed a disproportionate share of garrison duty and of fatigue duty, in part because there were doubts about the ability of black soldiers to fight (e.g. Berlin, Reidy, and Rowland 1998). Out of 137 black infantry regiments, 35 of them sustained almost three quarters of the entire loss in action of black troops (Hargrove 1998: 214-15).

Black soldiers were paid less than white soldiers. They could be promoted to corporal or sergeant, but still were paid the same as privates. Black soldiers and their officers faced greater danger than white troops if they surrendered because of uncertainty as to whether their Confederate opponents would be willing to take prisoners and, if taken prisoner, whether they would be treated as participants in a slave insurrection.

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<sup>1</sup>For a history of black soldiers in the Civil War see Berlin, Reidy, and Rowland (1998), Hargrove (1988), and Westwood (1992).

<sup>2</sup>It was not just slaves who were mistreated who joined the Union Army. Among the first 10 slave narratives that recounted own or a family member's service voluntary service in the Union Army (out of the first 12 narratives there are two recounting capture in the Union Army while being a servant in the Confederate Army), 6 mentioned that the master was good, 3 did not comment on the master, and 1 recounted escape to the Union Army after severe mistreatment. See the database, *American Slavery: A Composite Autobiography*.

### 3 Diversity Within Black Companies

Why was there diversity within companies of the US Colored Troops? Armies traditionally recruited companies from the same community to increase unit cohesion. After the issuance of the Emancipation Proclamation in January of 1863, the War Department authorized Connecticut, Massachusetts, and Rhode Island to form black regiments. Free blacks in other states had to travel to these states if they wished to enlist. After the establishment of the Bureau of Colored Troops in May of 1863 to regulate and supervise the enlistment of black soldiers and the selection of officers, other northern states were authorized to recruit black regiments and at the same time the War Department expanded its efforts to recruit in the Union occupied South. The white officers who commanded the troops were also responsible for recruitment.<sup>3</sup> Recruitment took two forms. One method was to establish headquarters in a community and have several of the white officers comb the countryside for recruits. Another method was to send in a unit of black soldiers for a recruitment campaign. Often the families of recruits were brought to safety within Union lines. In addition, runaway slaves would cross into the border states or to Union occupied territory to enlist (Glatthaar 1990). Colonels whose regiments were not yet at full strength might sometimes request permission to move to different areas of the country to recruit more men.<sup>4</sup>

Diversity entails both costs and benefits. Diversity allows for a greater transfer of ideas and learning. More diverse organizations should face lower costs of adapting to a new environment because the more employees fit in a given culture the higher the opportunity cost for the organization to undertake changes in which this organizational capital might be lost (Carrillo and Gromb 2002). Cultural diversity also allows for trades other than those in ideas. Workers who observe different religious holidays can trade days off. It may be optimal for firms to employ workers with different attachments to the firm because employing workers who only care about their status within the firm

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<sup>3</sup>Most white officers were drawn from the regular US Army Troops. There were some black officers, but none of them were in our sample. The majority of black officers were in the Louisiana Native Guards.

<sup>4</sup>For example, see the Regimental Letter Book of the 10th USCT, National Archives Record Group 94.

leads to an unproductive rat race while employing only workers who do not care about their firm status leads to low productivity (Fershtman, Hvidel, and Weiss 2003). But, diversity also imposes costs. A common culture allows individuals to have common expectations and customs which enhances trust (Lazear 1999). A common culture might be shared by members of the same ethnic, racial, or income group. Homogeneity might therefore foster greater social capital (for a review see Durlauf and Fafchamps 2004). A strong cultural identity encourages communication among firm employees (Crémer 1993). Firm employees from more diverse backgrounds have weaker incentives to undertake culture-specific investments in the firm (Carillo and Gromb 2002). Mentoring may be more productive if the mentor and the trainee are of the same background (Athey, Avery, and Zemsky 2000).

The recruiters for the US Colored Troops did not have the luxury of shaping the ideal company. A regiment that had not yet achieved full strength was not sent into battle and officers might lose their commissions if they failed to recruit in a timely manner (Glatthaar 1990). Once a company was formed it was not replenished and might fight at half strength after losing men to disease and to battlefield deaths. We therefore treat company attributes as exogeneous.

## **4 Empirical Framework**

We examine the costs and benefits of diversity in military companies for black slaves and freemen who served in the Union Army. The war required soldiers to perform a relatively narrow, unskilled task. Officers had to turn their men into a disciplined fighting force that would hold its ground and not desert, go AWOL, or sleep on picket duty. We would expect that a more homogeneous company would thus be the more effective fighting unit. Officers did not need the input of their men in their decision making.<sup>5</sup> They needed their men to be loyal to each other. After the war,

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<sup>5</sup>Mello and Ruckes (2001) present a formal model in which the characteristics of the leader affect the impact of team diversity on the firm.

though, soldiers may have benefitted from being in a more diverse environment if they learned from their comrades. For a population in which illiteracy rates were high, learning about life in a new locality from men who had lived there would be especially valuable. In addition, men from other communities might provide direct assistance in finding jobs or housing once the war over. Slaves brought into contact with freemen might be more likely to identify with freemen and to emulate them.

We first examine the effects of company diversity on group loyalty while in the service and then we examine the effects of company diversity on postwar outcomes. Our measure of group loyalty during the war is the first case of desertion, AWOL, or arrest. Desertion is the most serious and also the most common offense. The determination of whether a case was desertion or AWOL was made by a military court convened in the field. If a soldier was determined to have deserted, the time that he deserted was the first date that he was missing. Arrests that were not for desertion were for falling asleep while on picket duty, insubordination, drunkenness, robbery, assault, or other crimes and misdemeanors.

We study several postwar outcomes. We examine migration across states, census regions, and city size classes between enlistment and 1900 because of the importance of migration in improving economic opportunity. We study the predictors of writing ability in the postwar period. The newly freed slaves were for the most part illiterate and the road to schooling was long and arduous (Margo 1990). We also examine name changes among former slaves because among slaves who enlisted under their master's last name, a name change was arguably a way to forge a new, free identity. Slaves took their fathers' last names, even if these last names were also slave names, because free men inherited their fathers' names (Shaffer 1996: 78-9).<sup>6</sup> We do not examine occupational transitions because our occupational information is poor; many of the men listed as farmers were probably laborers.

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<sup>6</sup>In a different context, Fryer and Levitt (2003) emphasize that since the Black Power movement of the 1960s, giving a child a black sounding name can be explained by a simple identity story.



We use a time-varying independent competing risk hazard model to estimate days from muster-in until the first case of desertion, AWOL, or arrest. We use a competing risks framework so that we can control for such time-varying variables as morale and whether the war was over, so that we can test whether men became more committed soldiers over time, and so that we can account for censoring due to death, discharge, changing company, MIA, or becoming a POW. Note that we are assuming that the risk of desertion, AWOL, or arrest is independent of the outcomes on which we censor. Our estimated hazard,  $\lambda_i(t)$ , for one of our four models (i), is

$$\lambda_i(t) = \exp(x'\beta)\lambda_{i0}(t) \tag{1}$$

where  $x$  is vector of covariates consisting of both individual and group characteristics and  $\lambda_{i0}$  is the baseline hazard which we assume to be Weibull. The survival function takes the form  $\exp(-\lambda_{ij}t_j^p)$  for subject  $j$ , where  $p$  is the duration dependence parameter and can be interpreted as representing whether men who were in the war longer became more or less committed soldiers.<sup>7</sup> The hazard ratios that we report indicate whether a one unit increase in an independent variable increases or decreases the odds of desertion, AWOL, or arrest. We account for unobserved company-level correlation by using variance correction models (Lee, Wei, and Amato 1992; Cai, Wei, and Wilcox 2000). Clustering on companies provides us with a lower bound on the standard error of company characteristics.<sup>8</sup>

We study post-war outcomes by running probit regressions of the form

$$\Pr(y_i = 1) = \Phi(\beta x_i) \tag{2}$$

where  $y$  is the indicator variable of interest (moved across state, moved across census region, in

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<sup>7</sup>Because some men may never be disloyal, we also estimated models that accounted for individual heterogeneity. Although we found evidence of individual heterogeneity among the former slaves, the magnitude of our coefficients remained unchanged.

<sup>8</sup>We also ran shared frailty models in which the frailty was specific to the company. This yielded similar results.

a large city, able to write, or changed last name) and  $x$  is a vector of individual and company characteristics. When we examine whether or not a recruit was in a large city in 1900, defined as one of the top 100 cities, we condition on enlistment in a city that in 1900 was not one of the top 100 cities. When we examine name changes we examine only those former slaves who had a name that was known to be a master's name. We cluster all standard errors on the company.

## 5 Data

Our data are based upon the military service and pension records of 5,673 black Union Army soldiers in 51 infantry companies.<sup>9</sup> The military service records provide information on state of birth, age and occupation at enlistment, year and place of enlistment, and on all military service events such as death, injury, illness, desertion, arrest, AWOL, and discharge. The pension records provide information on post-bellum residence, occupation, and literacy and on name changes. The data were drawn as a cluster sample, in which all of the men in the 51 companies were sampled. This enables us to create such measures of company characteristics as the percentage of free men and birth place and cohort fragmentation. In addition we added information on the geographic movement of regiments and on officer characteristics. Lee (2004) finds that wartime geographic movements affected the migration of white Union Army veterans. Variable definitions are provided in the Data Appendix. Table 1 shows mean company characteristics and outcomes for the entire sample and separately for slaves and freemen. We draw some comparisons with a random sample of white Union Army soldiers.<sup>10</sup>

Our sample is representative of the US Colored Troops in terms of geography and slave status. Twenty-nine percent of the men in our sample were free, 28 percent percent of them were from

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<sup>9</sup>The sample represents roughly 2.7 percent of all blacks serving. The data were collected by a team of researchers led by Robert Fogel. Once the data are completed and cleaned, they will be available from the Center for Population Economics at the University of Chicago, <http://www.cpe.uchicago.edu>.

<sup>10</sup>The white sample is available at <http://www.cpe.uchicago.edu>.

the free states, and the remaining 72 percent were from the border and southern states. Twenty-two percent of these men died while in the service, a higher service mortality rate than that of 14 percent for white soldiers, mainly because sanitary conditions for black troops were so poor. Thirty-six percent of the men were in the 35 regiments identified by Hargrove (1988: 214-215) as having sustained the heaviest combat losses.

Roughly 9 percent of the men in our sample ever deserted, a slightly lower desertion rate than the 11 percent we find among whites. Four percent of the men in our sample were ever arrested for any reason and 1 percent were ever absent without leave. Among whites the comparable figures were 4 and 4 percent, respectively. Approximately 9 percent of all deserters in our sample were ever subsequently arrested, a figure comparable to that for whites. When punishment was imposed on arrested deserters, blacks were punished more harshly. Thirteen percent of all black deserters were sentenced to hard labor or wearing a ball and chain, compared to 6 percent of white deserters. However, forty-nine percent of black deserters were not punished at all, compared to forty-four percent of white deserters. Although sample sizes are too small to determine the statistically significant predictors of harsh punishments, punishments were slightly milder in regiments with abolitionist commanders.

Compared to the black population as a whole our sample is more northern, of slightly higher occupational status, and more urban. Twenty-two percent of our black veterans lived in one of the top 100 cities in the United States circa 1900. Among non-veterans of the same age group in 1910 the comparable figure was 10 percent. Veterans had higher urbanization rates than non-veterans in the south as well. Among black veterans who were on the pension rolls by 1900, 41 percent of those reporting a last occupation were farmers and 11 percent were professionals, proprietors, or artisans. The comparable figures for all blacks in the same age group reporting an occupation in 1900 were 49 and 8 percent, respectively.<sup>11</sup>

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<sup>11</sup>Estimated from the 1910 and 1900 Integrated Public Use Census Sample.

What determined entry on the pension rolls we use to obtain information about postwar outcomes? Both white and black veterans were eligible for a pension for war-related injuries. In 1890 pensions began to be paid for any disability, regardless of its relation to the war and by 1907 old age was recognized by Congress as a disability. Given the high rates of discrimination against blacks around the turn of the century, the pension program was relatively non-discriminatory. Among all men who identified themselves as Union veterans in the 1910 census we were able to find 86 percent of the white veterans and 79 percent of the black veterans in the pension records. Although blacks were less successful than whites in their original pension applications and in applications for increases (Blanck and Song 2004), even when an application was rejected, information about geographic residence, writing ability, and name changes was recorded.

## **6 Results: Becoming Good Soldiers**

Black soldiers in companies with greater diversity in state of birth and in age were more likely to desert, go AWOL, or be arrested (see Table 2). The odds that a former slave was guilty of a disciplinary infraction when there was a comrade from the same plantation were one-third the odds when there was no such comrade. When we examined time until first desertion we obtained similar results. When we looked at time until first AWOL we found that out of all of our diversity measures birth place fragmentation was the only statistically significant predictor, increasing the probability of AWOL. When we examined time until first arrest for a cause other than desertion we did not find a significant relationship with birth place or birth cohort fragmentation. We did, however, find that when a former slave was in a company with a comrade from the same plantation, he was less likely to be arrested.

Former slaves were more loyal to their company than free blacks. Slaves were fighting for their families' freedom, faced a lower opportunity costs of military service, and may have found their

unequal pay and promotion possibilities relative to whites less galling. The odds that a former slave rather than a free man would desert, go AWOL, or be arrested were 0.606 (see Table 2). Controlling for the same set of covariates, the odds that a former slave rather than a free man would desert (results not shown) were 0.643 ( $\hat{\sigma}=0.130$ , clustered standard error). If former slaves found themselves in a company with a high fraction of free men, their group loyalty was even greater. In contrast, the group loyalty of free blacks was not significantly affected by the fraction of free men in their company. Slaves among free men may have felt a greater need to prove their worth to the freemen who were their comrades. For the former slaves being in a regiment where an officer was a known abolitionist sympathizer decreased their chances of desertion, AWOL, or arrest. In contrast, freemen's loyalty was not affected by officers' abolitionist proclivities. Both slaves and freemen who were in the war longer became more committed soldiers (our duration dependence parameter is less than one).

In earlier work (Costa and Kahn 2003), we found that company homogeneity, ideology, and morale predicted desertion, AWOL, and arrest among white soldiers. Compared to white soldiers black soldiers were more loyal to their companies controlling for individual characteristics, the share of Union victories, and such company characteristics as birth place fragmentation (defined by state or country of birth) and company death rates (not shown). The odds that a black soldier rather than a white soldier would desert, go AWOL, or be arrested were 0.584 ( $\hat{\sigma} =0.080$ ). The odds of disloyalty for a former slave were 0.560 ( $\hat{\sigma} =0.084$ ) those of a white soldier and for a freedman 0.642 ( $\hat{\sigma} =0.130$ ) those of a white soldier.<sup>12</sup> Both whites and blacks were equally affected by company heterogeneity and by morale. The effects of birth place fragmentation, the share of Union victories, and company death rates on desertion, AWOL, and arrest were not statistically distinguishable by race. Black soldiers may have been more loyal because they were more dedicated to the cause or because they knew that they and their comrades might receive no quarter

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<sup>12</sup>The standard errors are clustered on the company.

on the battlefield.

We also ran specifications as robustness tests in which we included dummy variables indicating whether or not a soldier enlisted in the south or the deep south. Soldiers who enlisted in these regions were more likely to desert, controlling for all other factors. The standard errors on coefficients increased but their magnitudes remained the same. In the case of the former slaves the coefficient on the abolitionist officer dummy became insignificant even though its magnitude still suggested a substantial effect.

## **7 Results: Learning During the War**

Company diversity during wartime affected postwar migration. Table 3 shows that soldiers were more likely to move across states and across census regions between enlistment and 1900 if birth place diversity in their company was greater. Soldiers were more likely to move at least 239km, the minimum moving distance for the most mobile 25 percent of the sample, if they were from companies where birth place diversity was higher (results not shown). Soldiers may have either gained information on a new locality from their comrades or they may have been assisted by their former comrades in relocating after the war. Soldiers were also more likely to move to a new census region if they had traveled through a new census region during the war, perhaps because they gained new information about a place during their travels (see Table 3). The results for former slaves and freemen (not shown) were similar. Among soldiers who had not enlisted in a large city during the war, movement to a large city was predicted by travel to a city during the war and by the fraction of men in the company who had enlisted in a large city (see Table 3). Company state of birth fragmentation did not predict a move to large city, probably because it is a poor indicator of diversity in size of city of residence. The higher the age fragmentation the less likely a soldier was to move to a city.

Push factors may also have played a role in soldiers' migration decisions. Former black soldiers and their families were targets of mob anger in the south, because in the words of one former black chaplain he was "looked upon as a runaway 'nigger' who has been fighting against his old master and now returns full of impudent notions of a freeman" (quoted in Glatthaar 1990: 252). Matters may only have worsened with the removal of Union troops from the south in 1877. We tried to test for the importance of "push" factors by including in our migration probits the Republican share of the presidential vote in the state that the soldier enlisted in as a proxy for black enfranchisement. We found that among men who enlisted in the former Confederacy, men who enlisted in states where Garfield received a larger share of the vote in 1880 were less likely to move across state between enlistment and 1900. The derivative of the coefficient on Garfield's share of the vote was -0.036 ( $\hat{\sigma}$ =0.012, robust clustered standard errors). When we used Hayes' share of the vote in 1876 instead the derivative of the coefficient was -0.030 ( $\hat{\sigma}$ =0.017, robust clustered standard errors). These political variables were insignificant when we looked at the former Union states.

What determined what state a veteran moved to? Table 4 shows that, conditional on moving across states between enlistment and 1900, veterans were more likely to move to a state where they had traveled during the war or where a large fraction of the men in the company were from. The effect of the fraction of men in the company from a state on the probability of moving to that state was smaller if the veteran could write, perhaps because veterans who could write were less dependent upon their comrades for information about localities. There were no differential effects by slave status.

The former slaves were more likely to be able to write after the war if they were in a company with a large fraction of free men (see Table 5). Because free men were more likely to be able to write, for slaves comrades may have been a valuable educational resource. The greater the number of days spent in the army, the more likely the former slaves were to be literate. Whether or not

a commanding officer had abolitionist tendencies did not matter.<sup>13</sup> In contrast, for the free men, having an abolitionist officer was a positive predictor of postbellum writing ability and a large fraction of freemen in the company was a negative predictor of writing ability. Perhaps literate freemen were more likely to help illiterate slaves than illiterate freemen. For the freemen greater age diversity was also a negative predictor of post-war writing ability.

A larger share of free men in the company encouraged the former slaves to abandon their slave names. When we examined the 576 former slaves who had a last name that was the name of their master, we found that 32 percent of them changed their last name and that in a probit regression the derivative of the coefficient on the fraction of free men in the company was 0.224 ( $\hat{\sigma}=0.102$ , where the standard error is clustered on the company).<sup>14</sup> For the small set of men whose fathers' names were listed in the pension records, we were able to determine that most men who changed their last names changed them to their fathers' last names. Name changes were not statistically significant predictors of either postwar migration or writing ability. However, the magnitude of the coefficients suggested that former slaves who had rejected their master's last name were more likely to migrate across states and were more likely to write.

## 8 Conclusion

War experience can radically alter the course of one's life. Service in World War II and the Vietnam War lowered later earnings because of lost labor market experience (Angrist and Krueger 1994; Angrist 1990). Employment during mobilization for World War II permanently raised women's labor force participation rates (Acemoglu, Autor, and Lyle 2004). War service exposed black Civil War soldiers, a group that consisted mainly of illiterate farm workers, to a much broader world.

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<sup>13</sup>Relative to men who did not serve there some modest schooling effects of military service. Twenty-eight percent of African-Americans veterans living in the south in 1910 were able to write compared to 25 percent of non-veterans of the same age group. (Estimated from the 1910 Integrated Public Use Census sample.)

<sup>14</sup>We also found that 17 percent of free men changed their names. However, company characteristics did not predict name changes among free men.



In this sense, fighting for the Union Army can be viewed as participating in a training program. The average black soldier who fought in the Civil War and survived served with his unit for 500 days. The “treatment” from participating in this war depended on who were the man’s peers and his commanding officer and where his regiment traveled. While these men were likely to be most comfortable fighting in familiar surroundings with men whose background resembled their own, they would learn the most from living and fighting in heterogeneous companies and traveling through the nation. We have used a unique panel data set to document both this cost and this benefit of organization diversity. In the short run, the combat unit benefited from homogeneity as this social capital minimized shirking but in the long run the men’s human capital and information was best served by fighting in heterogeneous companies.

Our study has emphasized the importance of peers, commanders, and travel on the later life outcomes of ex-slaves and freemen. Each of the 51 companies in our data set experienced a different set of peers and each of the 39 regiments in our data set experienced a different set of leaders and traveled to different places. These heterogeneous treatments provided useful variation for testing hypotheses for how ex-slaves and freemen learned. While we have documented the benefits of participating in a heterogeneous unit, we cannot construct the counter-factual of how a black man’s life choices would evolve if he had not served in the military. We do not have a control group of men who were close to being drafted but did not serve. Recent literature on the effects of military service have focused on carefully controlling for potential selection effects of who serves and does not serve (Angrist and Krueger 1994; Angrist 1990). This literature has tended to assume a unique “treatment effect” from military service. Since we have detailed data on who each man’s commanding officer was, who his peers were and where they served, we were able to relax this “homogeneity” assumption and document how specific observable dimensions of treatment heterogeneity affect later life outcomes.

Participation in the Civil War may have both magnified the initial differences between slaves

and freemen and created the necessary conditions that allowed the descendants of slaves to catch up to the descendants of free men. It took two generations for the descendants of slaves to catch up to the descendants of free black men and women in literacy, occupation, and children's school attendance (Sacerdote, forthcoming). The majority of northern, black freemen served whereas only a fraction of blacks in the former slave states served. The freemen therefore disproportionately benefited from knowledge of migration opportunities learned from comrades or from travel and from educational programs set up by abolitionist officers. However, the war exposed some former slaves to new social interactions, allowing them to learn of migration opportunities, to learn how to write, and to adopt a freeman's identity. Slaves who had served in the Union Army in turn may then have paved the way for other ex-slaves, by helping them to adjust to freedom and to migrate from rural to urban areas. While the positive relationship between company diversity and desertion, AWOL, and arrest suggests that neither individual soldiers nor the army liked diversity, the post-war benefits of company diversity may have been extremely high.

## **Data Appendix**

### **Dependent Variables**

We examine time until first desertion, arrest, or AWOL among men in the service. For men on the pension rolls we use several dependent variables. We examine moves between state of enlistment and 1900 using a dummy variable equal to one if the veteran ever moved across states and a dummy variable equal to one if the veteran ever moved across census regions. We investigate urbanization between enlistment and 1900 by using a dummy variable equal to one if a veteran lived in city of at least 38,300 in 1900 (one of the top 100 cities) and condition on the recruit enlisting in a city that in 1900 was not one of the top 100 cities. We check what state a veteran moved to, conditional on his being a mover, using an indicator variable for all 48 states. We investigate the determinants of

a veteran's writing ability using an indicator variable equal to one if the veteran could write. This variable is not a good indicator of overall literacy rates because information on writing literacy is not available for everyone in the sample. We also created a variable indicating whether or not a soldier changed his name. We examine name changes only among former slaves who had a name that was a master's name.

### **Independent, Individual Variables**

Our individual control variables are age at enlistment; dummy variables indicating occupation at enlistment (farmer; professional, proprietor, or artisan; servant; laborer; and, unknown); a dummy equal to one if the recruit was born in the Confederacy; a dummy variable equal to one if the recruit was paid a bounty upon enlistment and a dummy variable equal to one if the recruit was owed a bounty; dummy variables indicating year of muster or enlistment; a dummy equal to one if the recruit was light-skinned; a dummy equal to one if the recruit was wounded in the war; the number of days served until discharge; a dummy equal to one if the soldier was ever promoted to corporal or sergeant; and, a dummy variable indicating whether or not the recruit was a slave. When slave status was not given (true for 64 percent of the sample), it was inferred from state of enlistment, e.g. all men enlisting in slave states were assumed to be slaves and vice-versa. When we examine post-war migration we also control for whether or not the recruit could write.

### **Company Characteristics**

1. **Birth place fragmentation.** We calculated, by company, the fraction of individuals born in each US state. Our birthplace fragmentation index,  $f_i$ , is then

$$f_i = 1 - \sum_k s_{ki}^2,$$

where  $k$  represents the categories and where  $s_{ki}$  is the share of men born in place  $k$  in company  $i$ .

2. **Cohort fragmentation.** We calculated, by company, the fraction of individual born in each 5 year birth cohort. Our cohort fragmentation index is then calculated the same way as our birth place fragmentation index.
3. **Fraction of company free.** The fraction of the company consisting of free men.
4. **Fraction of the company dying.** The fraction of the company dying while in the service. A single variable when used as a control for post-war experiences.
5. **Fraction promoted.** Fraction of the company promoted to corporal or sergeant.
6. **Abolitionist officer.** Dummy equal to one if any of the regiment's officers were known to be friendly to the abolitionist cause. Information on who the regiment's officers with ranks of colonel, lieutenant-colonel, or major were was obtained from Dyer (1908) and from U.S. Adjutant General's Office (1867). Information on these officers' sentiments was obtained from U.S. War Department (1880-1901), Glatthaar (1990), Hargrove (1988), Westwood (1992), Boatner (1959), and Hubbell and Geary (1995).
7. **Same plantation.** Dummy equal to one if the slaves were ever on the same plantation, as indicated by the owners' names.
8. **Fighting regiment.** Dummy equal to one if the regiment sustained heavy losses, as indicated in Hargrove (1988: 214-15).
9. **Regiment traveled to new region.** Dummy equal to one if the regiment ever moved to a new census region from that of enlistment. Compiled from Dyer (1908).
10. **Regiment traveled to a city.** Dummy equal to one if the regiment ever traveled to a city (other than that of enlistment). Compiled from Dyer (1908).

## **Other Variables**

In our hazard models we also control for whether or not the nation was still at war with a time-varying dummy variable which varies every half year. We also control for the fraction of Union victories through a time-varying variable that indicates for each half year that the recruit was in service the fraction of major Union victories to all major battles in that half year. This variable takes the value 0 if there were no major battles.

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Table 1: Mean Company Characteristics and Outcomes (Percent) for Slaves and Freemen

	All	Slaves	Freemen
<i>Mean Company Characteristics</i>			
Birth place fragmentation	0.565 (0.240)	0.555 (0.238)	0.586 (0.243)
Cohort fragmentation	0.752 (0.062)	0.759 (0.066)	0.738 (0.051)
Fraction of company that free	0.293	0.142	0.614
Fraction of company enlisting in a large city	0.253	0.197	0.371
Fraction with abolitionist officer	0.282	0.233	0.384
Fraction with fellow soldier from same plantation		0.049	
Fraction traveled to new census region while in service	0.755	0.712	0.846
Fraction traveled to a city while in service	0.734	0.687	0.864
<i>Military Service Outcomes</i>			
Ever deserted	8.6	8.7	8.6
Ever AWOL	4.1	3.7	5.0
Ever arrested	1.4	1.6	1.2
<i>Postwar Outcomes</i>			
State mover, enlistment-1900	44.7	44.4	45.5
Census region mover, enlistment-1900	29.2	29.5	28.3
Moved to a large city and did not enlist in a large city	27.2	26.8	29.5
Writes	25.7	23.7	33.8
Changed name if slave with master's last name		32.3	

Standard errors are in parentheses. A large city is defined as one that in 1900 was one of the top 100 cities in the United States. Writing ability is not known for 4 percent of the sample who were alive and on the pension rolls by 1900.



Table 2: Company Diversity and Waiting Time until Desertion, AWOL, or Arrest

	All Hazard Ratio	Slaves Hazard Ratio	Freeman Hazard Ratio
Dummy=1 if slave	0.606 <sup>‡</sup> (0.098)		
Birth place fragmentation	4.984 <sup>‡</sup> (2.180)	3.453 <sup>†</sup> (1.802)	3.274 <sup>†</sup> (1.941)
Cohort fragmentation	8.525* (11.072)	1.928 (2.346)	27.723 (100.291)
Fraction of company that free	0.467 <sup>†</sup> (0.149)	0.189 <sup>‡</sup> (0.095)	1.159 (0.614)
Dummy=1 if abolitionist officer	0.776 (0.146)	0.693 <sup>†</sup> (0.108)	1.061 (0.246)
Dummy=1 if fellow soldier from same plantation		0.358* (0.191)	
Duration dependence parameter	0.714 <sup>‡</sup> (0.038)	0.728 <sup>‡</sup> (0.040)	0.711 <sup>‡</sup> (0.097)
$\chi^2(20)/\chi^2(19)$	792.62	562.80	426.88

5,182 subjects, 3,614 slave and 1,568 free. Estimated from a competing risk hazard model. Days until first desertion, arrest, or AWOL are measured from first mustering in. The first instance of either is an event. Standard errors, clustered on the company, are in parentheses. The symbols \*, †, and ‡ indicate that the coefficient is significantly different from 1 at the 10, 5, and 1 percent level, respectively. Significance of all coefficients is for equality of all coefficients to one. Men who died, became POWs, were discharged, were missing in action, or changed companies before the first desertion, arrest, or AWOL are treated as censored. Additional covariates are dummies for year of enlistment, dummies for occupation at enlistment, dummies for bounty paid and bounty due, a dummy for light-skinned, a dummy if born in a Confederate state, age, a dummy if the nation was at war, a dummy if the regiment was a fighting regiment, and the fraction of Union victories.

Table 3: Company Characteristics and the Postwar Probability of Moving Across State, Region, or City

	Moves Across		
	State $\frac{\partial P}{\partial x}$	Region $\frac{\partial P}{\partial x}$	City Size $\frac{\partial P}{\partial x}$
Dummy=1 if slave	-0.014 (0.048)	-0.019 (0.052)	0.071* (0.036)
Birth place fragmentation	0.664‡ (0.104)	0.465‡ (0.110)	0.092 (0.079)
Cohort fragmentation	-0.088 (0.472)	0.193 (0.418)	-0.817† (0.349)
Fraction of the company that free	-0.123 (0.084)	-0.192† (0.086)	0.149† (0.071)
Fraction of the company enlisting in a large city			0.172† (0.088)
Dummy=1 if abolitionist officer	-0.040 (0.059)	-0.015 (0.053)	0.065 (0.043)
Dummy=1 if regiment traveled to new region	0.039 (0.063)	0.134† (0.051)	
Dummy=1 if regiment traveled to city			0.092* (0.051)
Pseudo $R^2$	0.085	0.092	0.100

Estimated from a probit model. Moves across city size are moves to a city that in 1900 was one of the top 100 cities, conditional on enlisting in a city that in 1900 was not one of the top 100 cities. Standard errors, clustered on the company, are in parentheses. The symbols \*, †, and ‡ indicate that the coefficient is significantly different from 0 at the 10, 5, and 1 percent level, respectively. Additional covariates are dummies for year of enlistment, dummies for occupation at enlistment, dummies for birth cohort, a dummy for light-skinned, a dummy if born in a Confederate state, the logarithm of the number of days served, a dummy if the regiment was a fighting regiment, a dummy if individual was promoted, the fraction of the company that was promoted, the fraction of the company that died in service, a dummy equal to one if the recruit was injured during the war, and dummies indicating writing ability, including unknown. The first two regressions contain 1498 observations and the last regression contains 1163 observations.

Table 4: Determinants of State Migrant Locational Choice

	Coef- icient	Odds Ratio	Coef- icient	Odds Ratio
Regiment was there	0.362 <sup>‡</sup> (0.109)	1.437 <sup>‡</sup> (0.156)	0.325 <sup>†</sup> (0.145)	1.384 <sup>†</sup> (0.201)
Fraction of men in company from that state	1.123 <sup>‡</sup> (0.205)	3.075 <sup>‡</sup> (0.631)	1.098 <sup>‡</sup> (0.276)	3.000 <sup>‡</sup> (0.827)
Distance from enlistment state (miles/100)	-0.172 <sup>‡</sup> (0.013)	0.998 <sup>‡</sup> (0.000)	-0.185 <sup>‡</sup> (0.019)	0.998 <sup>‡</sup> (0.000)
Latitude difference from enlistment state (minutes)	-0.071 <sup>‡</sup> (0.018)	0.931 <sup>‡</sup> (0.017)	-0.067 <sup>‡</sup> (0.025)	0.935 <sup>‡</sup> (0.023)
Writes × Regiment was there			0.091 (0.278)	1.095 (0.304)
Writes × Fraction men from state			-1.279 <sup>†</sup> (0.578)	0.278 <sup>†</sup> (0.161)
Writes × Distance			0.018 (0.031)	1.000 (0.000)
Writes × Latitude			-0.384 (0.045)	0.962 (0.043)
Pseudo $R^2$	0.136	0.136	0.132	0.132

Coefficients and odds ratios are from a conditional logit model. Characteristics are the characteristics of the potential location (state). The soldier decides which state to move to based upon its characteristics, conditional on being a state mover. Each observation,  $s_{ij}$ , is person  $i$ 's potential choice of state  $j$ . Robust standard errors, clustered on the individual, are in parentheses. The symbols \*, †, and ‡ indicate that the coefficient is significantly different from 0 at the 10, 5, and 1 percent level, respectively. 34,710 observations in the first regression and 27,534 observations in the second regression (individuals for whom writing ability is unknown were excluded).

Table 5: Company Characteristics and Postwar Writing Ability

	All $\frac{\partial P}{\partial x}$	Slaves $\frac{\partial P}{\partial x}$	Freemen $\frac{\partial P}{\partial x}$
Dummy=1 if slave	-0.081 <sup>†</sup> (0.040)		
Birth place fragmentation	-0.048 (0.059)	-0.034 (0.065)	-0.041 (0.128)
Cohort fragmentation	-0.317 (0.210)	-0.128 (0.283)	-1.266 <sup>‡</sup> (0.412)
Fraction of the company that free	0.050 (0.042)	0.081* (0.047)	-0.438 <sup>‡</sup> (0.176)
Dummy=1 if abolitionist officer	0.039 (0.031)	0.012 (0.040)	0.122 <sup>†</sup> (0.056)
Log(number of days served)	0.044 <sup>†</sup> (0.021)	0.052 <sup>†</sup> (0.023)	0.045 (0.047)
Pseudo $R^2$	0.061	0.049	0.151

Estimated from a probit model. Standard errors, clustered on the company, are in parentheses. The symbols \*, †, and ‡ indicate that the coefficient is significantly different from 0 at the 10, 5, and 1 percent level, respectively. Additional covariates are dummies for year of enlistment, dummies for occupation at enlistment, dummies for birth cohort, a dummy for light-skinned, the logarithm of the number of days served, a dummy if the regiment was a fighting regiment, a dummy if individual was promoted, and a dummy equal to one if the recruit was injured during the war. 1,643 observations, 1,315 slaves and 328 freemen.