Education Peer Effects in the Workplace: Evidence from the US Army

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Abstract

While nearly two-thirds of US high school graduates immediately enroll in college, one-quarter of college students are 25 or older. We explore the role of workplace peers in the higher education attainment of nontraditional students. We leverage random assignment of first-term soldiers to US Army peer groups to estimate a 10 p.p. increase in the fraction of peers with prior college enrollments increases soldiers' own likelihood of enrollment by 0.61 p.p. (3.4%) and graduation by 0.12 p.p. (18%) within three years of joining the peer group. We find suggestive evidence that both information and mentoring mechanisms drive our results.

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1 Introduction

For the marginal student, college education increases wages enough to outweigh both its costs and the wages forgone during enrollment (Zimmerman, 2014; Mountjoy, 2024). Nevertheless, 34–39% of high school graduates do not immediately enroll in a postsecondary institution (BLS, 2024). Many high school graduates do return to college later, however. While most enrollments at degree-granting postsecondary institutions are by traditional students (ages 18–24), one-in-four are over the age of 25 (National Center for Education Statistics, 2022). The US invests a significant amount of resources in education and training for this population. The US Veterans Administration paid out over 12 billion dollars in education benefits (U.S. Department of Veterans Affairs, Veterans Benefits Administration, 2026) while the US Employment and Training Agency spent over 4 billion dollars on employment and training activities in 2024 (U.S. Department of Labor, 2025). These funds include traditional scholarships/grants for postsecondary institution tuition and associated fees along with specific grants for STEM education, technical training, and apprenticeships. Additionally, private sector employers provide tax free education assistance equal to an estimated $1.3 billion federal tax expenditure[1] a year to employees through the Employer–Provided Education Assistance program (Joint Committee On Taxation, 2019). Given the size of this population and the amount of investment in their education and human capital formation, it is important to understand what influences non-traditional students' decision to pursue postsecondary education.

In this paper, we examine the role of labor force peers in adults' decision to enroll in college and complete a degree. While research has found that high schoolers are likelier to enroll in college when their peers do (Abramitzky et al., 2021; Barrios-Fernández, 2022), the direction and magnitude of workplace peer effects on education outcomes, if they exist, is ambiguous due to peers' heterogeneous college experiences. While prior literature would suggest that increased exposure to peers with college experience would increase enrollments, exposure to more peers that dropped out of college may decease focal individuals' future enrollments. We leverage random assignment to peer groups in the US Army to identify the causal impact of peers' prior college enrollment on soldiers' future college enrollment and degree attainment, a setting where many peers with college experience do not have degrees.

Researchers face three primary challenges in estimating peer effects (Manski, 1993).

[1]This reflects the estimated forgone federal tax revenue, not the total employer-provided benefit.

First, individuals typically select their own peer groups, which makes it difficult for the researcher to disentangle peer effects from selection effects. Second, peers both influence and are influenced by each other, such that most models of peer effects include simultaneous equations—what Manski calls *reflection*. Third, common shocks that impact entire peer groups are often indistinguishable from peer effects. Prior work on peer effects in the military has largely solved the issues of peer selection and reflection by leveraging random assignment of soldiers to peer groups and defining peer measures at their values prior to focal soldiers' arrival to their peer groups (Carter and Skimmyhorn, 2017; Lieber and Skimmyhorn, 2018; Murphy, 2019; Chesney, 2022; Wozniak et al., 2024). However, isolating peer effects from the influence of common shocks has proven difficult.

Our sample consists of soldiers who enlisted in the US Army from 2005 to 2019. After an initial three-15 months of basic and occupational training, soldiers are assigned to "companies" of 100-150 peers where they serve for two-three years before either moving to a different company or leaving the Army. Service members are assigned to peer groups in a method that is quasi-random conditional on location, time, and soldier qualifications. We measure soldiers' college enrollments and degree receipt annually up to eight years following soldiers' arrival to their initial peer group, with education outcomes visible before, during, and after soldiers' Army service.

We estimate that a 10-percentage-point (p.p.) increase in the share of peers with college enrollments prior to joining the Army increases focal soldiers likelihood of enrolling in any college courses within three years of joining the peer group (the modal duration of soldiers' contracts) by 0.6 p.p. (3.4%) and receiving a degree within three years by 0.12 p.p. (18%). The peer effect for enrollments is half as small in p.p. terms four years after soldiers join the peer group and persists out to eight years after joining the initial peer group (at least five years after leaving the peer group). Thus, having more educated peers induces both an intertemporal substitution of soldiers' enrollments and a permanent increase in their long-term likelihood of enrollment. Heterogeneity analysis finds that peers have a greater impact on lower test score and non-white soldiers. These results provide suggestive evidence that the peer effect is driven by both information spillovers and role model/mentor effects. The timing of changes in available military education benefits suggests information spillovers about Army continuing education benefits drive the intertemporal substitution while role model effects are a likely mechanism to explain the persistence of the peer effect. Finally, back-of-the-envelope calculations suggest that a 10 p.p. increase in the share of peers with prior college enrollment has the same impact

on soldier enrollment within two years as an increase in education benefits of $12,600 per soldier.[2]

We contribute to the literature on interventions that seek to increase college enrollment and completion. Since adult learners make up a substantial proportion of American college students, understanding how adult education investment decisions are made is important to understanding human capital formation. We test the role of workplace peers, a source of information and mentoring common among adult learners but less so among high school students, in driving educational attainment. Existing research testing information and mentoring interventions has found mixed results on their effectiveness. Additionally, different types of interventions have the greatest impact on different types of students. Research on information interventions finds strongest enrollments impacts on high ability students from low-income high schools (Kapor, 2025; Dynarski et al., 2021; Hyman, 2020). In contrast, mentoring interventions have either targeted or had the greatest enrollment impact on disadvantaged students, lower ability and lower socio-economic status, though there is mixed evidence on the impact on degree completions of these programs (Falk et al., 2026; Rodríguez-Planas, 2012; Resnjanskij et al., 2024). The differences in findings for different interventions suggest different sets of marginal students face different barriers to education: high-ability, lower resource students benefit from reductions in uncertainty around the costs of college while lower-ability students benefit from learning skills to better perform in college. We find that having more educated peers increases not only enrollments, but persistence in degree completion with evidence of both information and mentoring mechanisms driving results. Our research furthers understanding of how adults make education investments and ways to influence those decisions.

On peer effects, research has found evidence of workplace peer effects on a variety of outcomes: productivity (Mas and Moretti, 2009; Murphy, 2019), marriage (Wozniak et al., 2024), and credit and finances (Lieber and Skimmyhorn, 2018; Carter and Skimmyhorn, 2017). In education, high school students' peers' enrollment in college increases focal students' own college enrollment (Abramitzky et al., 2021; Barrios-Fernández, 2022). Additionally, in the labor force, peers' usage of continuing education benefits and attainment of graduate degrees increases air force pilots' enrollments in graduate programs (Chesney, 2022). Yet, peer effects are highly dependent on context (Sacerdote, 2014). Thus, it is unclear whether the estimates of peer effects for other nations including Israel (Abramitzky

[2]Calculations based on the impact of increased Post-9/11 GI Bill benefits on enrollments from Barr et al. (2021).

et al., 2021) and Chile (Barrios-Fernández, 2022) generalize to the US. Moreover, how the effects of peers in the labor force might differ from those of peers in high schools is unclear. Peers interact differently in high schools than in workplaces. While studies on military pilots have suggested a positive effect of labor force peers on the extensive margin of graduate school enrollments (Chesney, 2022), pilots have highly specific human capital, so their returns to education differ from those of most high school graduates. Accordingly, we seek to extend the literature on peer effects on college enrollments to a large and understudied population of individuals in the labor force.

The rest of the paper is structured as follows. Sections 2 and 3 provide background on Army peer group structures and interactions, the incentives and benefits soldiers have to pursue higher education, and the data we use. Section 4 lays out our identification and model specification. Importantly, Section 4 describes our methods for distinguishing peer effects from the impacts of common shocks. Section 5 describes our main results and compares them with the peer effects estimated in other settings. Section 6 discusses mechanisms through which the peer effects we identify might operate.

2 Background

2.1 Army Organization: Brigade Combat Teams

Army units are highly structured, with the smallest groups (four- to six-member squads) nested in command structures of up to 3500+-member brigades (Figure A1). Brigades are the largest organizational structure for routine interactions and actions in the Army. Each brigade is made up of six to seven subgroups (battalions), each of which has three to five companies. Companies each contain roughly 100–150 soldiers and are the peer group of focus for this paper (smaller peer groups are not identifiable in the data). Soldiers serve in companies for approximately two to three years before moving to a new company in a new brigade or separating from the Army.

To be better able to claim that our approach identifies a peer effect, we restrict our sample to brigades within which companies perform similar duties in similar work environments, namely, brigade combat teams (BCTs). From 2004, the Army implemented a new organizational model that established a cycle of training, deployment, and reset for all Army BCTs to sustain war-fighting capability during the extended conflicts in Iraq and Afghanistan. These changes aimed to ensure BCTs' self-sustainability and interchange-

ability during combat operations, such that when one brigade ended its deployment, another could replace it with minimal, if any, loss or change of function (Johnson et al., 2012). This interchangeability is important for this study as BCTs and the companies within them are largely similar organizations and work environments. By restricting our sample to BCTs, we reduce the potential for common shocks related to differences in companies' standard work responsibilities and environment to confound our estimates.

2.2 Enlistment Timeline & Enlisted Life

Enlistment in the US Army starts with the signing of a contract that details length of service and initial occupation. Three to fifteen months later, soldiers begin 10-week basic training followed by two to 52 weeks of advanced individual training (AIT) in occupation-specific skills. After the completion of basic and AIT, soldiers join an operational company stationed in the United States or abroad. What brigade these first-term enlisted soldiers are assigned to is determined through a centralized process run by career managers at Army Human Resources Command in Ft. Knox, Kentucky. Career managers match soldiers on the basis of occupation, rank, gender, quarter in which they are scheduled to finish AIT, contract length, and post/location preferences. Within these groups, soldiers are as good as randomly assigned to companies with open positions (see Section 4.1). Soldiers then live and work in close proximity to other members of their company for two to three years before either moving to a new unit or separating from the Army.

Army companies are an excellent setting for our study of peer effects because of how much time soldiers spend with their company. On Army posts, companies both live and work together. Company offices, motor pools, and other facilities are all co-located, and companies conduct physical training (workouts) together in the morning and share work tasks. Soldiers in a company also often spend evening and weekend leisure time together because they have a common work and training schedule, which may differ from that of other companies. This is especially true for the junior enlisted soldiers, the focus of this study, who are mostly required to live in company barracks and often share subsidized meals in unit dining facilities. In comparison to civilians, soldiers have far more contact with their workplace peers. Thus, our estimates likely represent an upper bound on workplace peer effects in civilian workplaces.

2.3 Army Education Incentives

The Army offers soldiers several incentives to attend college that impact their enrollment decisions after they enlist. First, enlisted soldiers have access to Army tuition assistance (TA), a continuing education benefit available to all active-duty soldiers (U.S. Department of the Army, 2019b, 2025). In accordance with Army regulations, TA provides up to $4,500 annually for classes taken at accredited Title IV postsecondary institutions and $250 per credit hour. TA covers no more than 16 credit hours a semester and 130 semester hours overall. Soldiers must make progress toward degree completion and may pursue only one degree at a time. Funds can be used to take classes in person, online, or by nontraditional means. TA funds cannot be used with other sources of federal funding, including Post-9/11 GI Bill (PGIB) benefits.

According to guidelines posted by the Department of Veterans Affairs (U.S. Department of Veterans Affairs, 2025), PGIB benefits include net tuition and mandatory fees at public institutions of higher learning or up to $29,920.95 per year (as of August 2025) toward tuition and fees at private institutions, in addition to a small stipend for books and supplies and a housing stipend (for veterans only). Thus, PGIB subsidies are slightly more generous for enlisted soldiers at public schools with lower tuition costs, and the difference in benefits between TA and PGIB benefits is larger at higher-tuition schools. Soldiers who have served at least 90 days on active duty are eligible for 50% and those who have served 36 months for 100% of the PGIB benefit amounts (soldiers can be currently serving while using GI Bill benefits). For soldiers eligible for 100% of their PGIB benefits, some schools may cover any remaining tuition gap through the Yellow Ribbon Program (U.S. Department of Veterans Affairs, 2024).[3]

Finally, the Army encourages soldiers to obtain civilian education through rank promotion incentives. The first three promotions for enlisted soldiers are automatic and based solely on total time in the Army and time spent in the previous rank (U.S. Department of the Army, 2024). However, promotions to noncommissioned officer (sergeant or staff sergeant) are based on a points system. Soldiers can accrue points by completing mil-

[3]Consider a hypothetical soldier stationed at Ft. Hood, Texas. This soldier may decide to enroll in classes nearby at Texas A&M – Central Texas. Tuition at Texas A&M – Central Texas is $260.08 per credit up to $3,120.95 for twelve or more credits (Texas A&M University–Central Texas, 2025). All enlisted soldiers can use TA to cover $250 per credit up to the total cost of tuition. After three years of service, the soldier, whether still enlisted or separated, could use her PGIB benefits to cover full tuition and mandatory fees. If she was a veteran no longer on active duty and without (with) dependents, PGIB benefits would also pay $1,452 ($1,581) per month for housing costs (U.S. Department of Defense, 2025) and a small stipend for books and other incidentals.

itary training (weapons proficiency and physical fitness), undergoing military education, earning commendations or medals, and completing civilian education. Soldiers receive points toward promotion to sergeant (staff sergeant) for up to 67.5 (80) semester hours of college credit.[4] Soldiers also receive points equivalent to ten semester hours of credit for finishing a degree while in service for promotion to sergeant and for finishing while a sergeant for promotion to staff sergeant. The maximum points achievable for civilian education are approximately half those available for military training and slightly below those for awards and decorations. The minimum time in service requirements for standard promotion to sergeant is 34 months, so these incentives are limited for soldiers who plan to serve only one contract term.

3 Data and Sample Construction

3.1 Administrative Records

The primary dataset that we draw on is the Army Enlisted Master File (EMF), a monthly snapshot of administrative data for the universe of active-duty enlisted soldiers. Most importantly, it includes soldiers' assigned companies and post, military occupation specialty (MOS), rank, entry ASVAB/AFQT[5] scores, contract length, whether the soldier required a waiver to enlist, deployment status, separations and misconduct, reenlistments, family and dependents, and demographics. Dependent data are supplemented by data from the Defense Enrollment Eligibility Reporting System (DEERS), which tracks military dependents for eligibility for insurance and other benefits. These data cover 1991 through the present. Our sample includes all soldiers who joined the Army between 2005 and 2019.

Our measure of college enrollment comes from the National Student Clearinghouse (NSC), which provides education (enrollment and degree) records for US postsecondary institutions. These data allow us to track soldier enrollments and degrees through 2020. The NSC data are linked to Army administrative records on the basis of soldier Social Security numbers. Importantly, the NSC data include enrollments and degrees from when soldiers are enlisted and after they separate from the Army. Thus, we can mea-

[4]The Army converts credit hours earned in quarters or other systems to a semester-hours equivalent.

[5]The Armed Services Vocational Aptitude Battery (ASVAB) is a battery of tests that the military uses to assess soldiers vocational aptitude. Four sections of the ASVAB that test arithmetic and verbal reasoning skills are aggregated to calculate AFQT (Armed Forces Qualification Test) scores. These determine applicants' eligibility to enlist, receive certain bonuses, and enter certain occupations.

sure impacts on soldier college enrollments 4+ years after soldiers join their company even though a significant number of the soldiers will have left the Army by this point.

3.2 Sample Construction

There are 701,909 first-term soldiers (excluding officers and warrant officers) who enlisted in the active-duty Army between 2005 and 2019. We restrict the sample of soldiers whose outcomes we study empirically (as outlined in Table A1) but do not restrict the set of soldiers who are their peers. Namely, to reduce any influence of common shocks on our estimates, we first limit the analysis to the 330,440 soldiers serving in BCTs. With this restriction, we exclude soldiers assigned to training brigades and support units, who have highly heterogeneous experiences. Likewise, we exclude soldiers serving in headquarters companies (73,683 soldiers), whose duties differ notably from those of soldiers in nonheadquarters companies. We next exclude soldiers with irregular contracts: those who enlist as noncommissioned officers (34 soldiers) and with initial contracts lengths of less than 3 years or greater than 6 years (2,901 soldiers). This restriction leaves us with 253,822 soldiers. We next exclude soldiers who completed a degree prior to enlisting since the returns to education are different for those with and without degrees; this step brings the sample to 240,900 soldiers. Finally, random assignment to peer groups is conditional on the interaction of duty station (post), occupation, quarter of arrival to company, gender, and contract length. Thus, after we exclude singleton fixed effect groups (featuring soldiers who are the only new arrivals at that post during that quarter with the same occupation and contract length and same gender), we obtain an estimation sample of 216,886 soldiers. Finally, tables and figures that report results over different time horizons restrict the sample to a balance panel (I.e tables that report peer effects on enrollments and graduations up to three years after arrival to the focal soldier's peer group restrict the sample to soldiers for whom we observe three years of outcomes).

3.3 Summary Statistics

Table 1 gives summary statistics for education data and covariates for this sample. Panels A and B shows averages for our primary outcomes (college enrollment and degrees after enlistment). Five percent of the soldiers in the sample do enroll in college courses within a year of arriving to their company. This share rises to 19% within three years (the modal contract length) and 43% within five years. Degrees are a rarer outcome, with only

3.7% of soldiers earning a degree within 5 years of arriving to their company. Panel D describes individual-level attributes of the sample. The soldiers in our sample are mostly unmarried men. A majority are white, and 36% had enrolled in at least one college class prior to enlisting.

4 Identification & Methodology

4.1 Random Assignment: "Faces-to-Spaces"

Soldiers are assigned to units to meet the Army's needs: Army regulations state that "the primary goal of the enlisted personnel assignment system is to satisfy the personnel requirements of the Army" (U.S. Department of the Army, 2019a) and that "the primary considerations ... shall be the Soldier's current qualifications and ability to fill a valid requirement [position]" (U.S. Department of the Army, 2019a). These requirements come from the Army's projections of company-level vacancies by MOS and grade (rank) for four to twelve months into the future. Soldiers' desires are a secondary criterion that enters the assignment process through soldiers' preferences for post (location). Additionally, a soldier's initial contract length influences the number of assignments he has over the course of his contract and thus what assignments he can fill (U.S. Department of the Army, 2019a). However, soldiers cannot request assignment to specific companies, nor can their preferences for post get them assigned to jobs for which they are not qualified. Thus, the same set of potential positions is the same for soldiers with the same gender,[6]qualifications (grade,[7] occupation), and availability (quarter they arrive to their company and initial contract length) and who are assigned to the same post (to account for location preferences). (See Figure A2.)

Soldiers are initially assigned to a brigade by the Army's Human Resources Command (HRC). HRC uses a proprietary algorithm to match soldiers to potential positions. After arriving at the brigade, soldiers are assigned to companies by brigade personnel irrespective of soldier characteristics or preferences except those mentioned above. While the Army does not disclose its exact matching process, given the regulations cited above, assignment of soldiers with the same qualifications and availability is as good as random.

[6]Women were restricted from combat roles during this time.

[7]Soldiers qualify for vacancies on the basis of grade group (e.g., lower enlisted), not specific grade (e.g., private first class) (U.S. Department of the Army, 2019a). Since the sample is restricted to soldiers who enlisted in lower enlisted grades, this condition is not relevant for the sample.

Literature has leveraged Army assignments as conditionally random to answer questions on a variety of topics, including deaths of despair (Bruhn et al., 2024), marriage formation (Wozniak et al., 2024), credit and finances (Carter and Skimmyhorn, 2017; Lieber and Skimmyhorn, 2018), and parental absences (Angrist and Johnson IV, 2000).

4.2 Identifying Variation

We define peer education as the percentage of the peers in a soldier's peer group who had ever enrolled in college before enlisting. To avoid bias from mechanical within-group correlations, as described in Angrist (2014), we split peer groups based on the time of arrival of soldiers: newly arrived members are focal observations with existing members serving as peer observations. We can do this since soldiers remain in peer groups for two – three years while group membership is constantly turning over. That is, group membership changes monthly while individuals remain in the group for years. This is different than settings such as classrooms where group membership turns over all at once; all/most students enter a classroom at the start of the school year and exit at the end of the year. The constant turnover of peer groups in the Army allows us to proxy the eduction of a peer group in the quarter focal soldiers join the peer group using the education of the peer group the quarter prior. Since most peers in the peer group in a given quarter were also in the same peer group in the prior quarter, the lagged peer group education is a strong proxy for the current peer group education. Thus, if we restricted the sample to a single quarter, only newly arrived soldiers would be in the estimation sample. This eliminates the within group comparisons that are problematic when measuring peer group characteristics using a leave-out mean since all soldiers in the same peer group that arrived in the same quarter have the same value of the peer measure. We can then expand the estimation sample to all quarters and include all newly arrived soldiers in the estimation sample by including quarter of arrival fixed effects. By using a peer measure that is constant within peer group, arrival quarter combinations and only making comparisons between soldiers that arrive to their peer groups in the same quarter we purge our estimation of within peer group comparisons.

Our measure of peer group education is formally defined as follows:

$\tau_i \equiv$ the quarter soldier i joined the Army

$t_i \equiv$ the quarter soldier i arrived to his first operational company

$u_{i,t} \equiv$ the company soldier i serves in during quarter t

$ever\ enrolled_{i,\tau_i} \equiv$ an indicator equal to 1 if soldier i had ever enrolled in a college course

prior to enlisting in the Army.
Our main measure of peer education in company u is:

$$\overline{initial\ ed}_{u,t_i-1} \equiv \frac{1}{n_{u,t_i-1}} \sum_{\{j:u_{j,t_i-1}=u_{i,t_i}\}} ever\ enrolled_{j,\tau_j} \tag{1}$$

For a soldier who arrives to a company in period t_i, we define who is a member of his peer group on the basis of the company's composition in period $t_i - 1$, the quarter prior to the observed soldier's arrival. Additionally, we fix the measures of peers' education at their values when those peers entered the Army, τ_j. This serves to eliminate reflection bias and removes any correlation between the peer measure and any elements of service, such as assignment to commanders or deployments. This, along with our restricting to similar workplace environments (BCTs), reduces the potential for common shocks related to service to influence our estimates. Table 1 Panel C describes averages of peer education at entry. On average, 37% of soldiers' peers entered the Army with prior college experience. Figure 1 shows the peer measures distribution residualized on the random assignment fixed effect.

Table 2 column (1) tests whether initial peer education as defined in equation 1 is correlated with observable soldier characteristics. Each row reports the coefficient from the following regression. As motivated by the assignment process, $\theta_g(i)$ is a fixed effect interacting the solider characteristics that influence assignments: occupation, post, gender, term length, and quarter of arrival. Coefficients are scaled to be interpreted as the change associated with a 10 p.p. increase in the peer measure:

$$X_i = \beta_0 + \beta_1 \overline{initial\ ed}_{u,t_i-1} + \theta_{g(i)} + \eta_i \tag{2}$$

Assignment to a company with 10 p.p. higher peer education at entry is associated with a 0.484 p.p. greater likelihood of the soldier's having college experience prior to joining the Army, relative to a mean of 36%. This correlation is statistically significant at the 5% level. However, a joint F-test of the hypothesis that all the coefficients reported in column (1) are jointly equal to zero yields a p-value that fails to reject the null that the fraction of peers with college experience is uncorrelated with observable soldier characteristics.

Additionally, to assuage concerns that the relationship between peer prior education and observed soldiers' prior education drives our results, we use soldiers' pre-arrival characteristics (including prior education) to predict two-year college enrollment out-

comes.[8] If the soldiers likelier to go to college independently of their peers' influence were assigned to more educated units, then peer education would be positively associated with predicted soldier enrollments. In Figure 2, we compare the results from a local linear regression of soldiers' two-year enrollment outcomes on initial peer education to those from a local linear regression of predicted two-year enrollments on initial peer education. Peer education is positively associated with soldiers' future education but not with soldiers' predicted future education. This is further evidence that any reshuffling of soldiers to companies after random assignment does not sort the soldiers likelier to go to college independent of their peers' education into units with higher fractions of soldiers with college experience.

4.3 Model

We start with a basic linear-in-means model given by equation 3:

$$enrollment_{iu} = \beta_0 + \beta_1 \overline{initial\ ed}_{ut_i} + \delta X_{iu} + \overline{\delta X}_{ut_i} + \theta_{g(i)} + \epsilon_{iu} \tag{3}$$

where $enrollment_{iu}$ is a dummy equal to one if soldier i has enrolled in college classes since joining company u. X_{it} is a vector of individual characteristics, and $\overline{X}_{ut_i}$ is the unit mean for those characteristics. These characteristics include AFQT score, gender, race, age, and marital status. Finally, $\theta_{g(i)}$ denotes fixed effects for the interaction of soldier occupation specialty (MOS), post, gender, initial term length, and time of arrival. β_1 is the estimate of primary interest: the impact of peer education on soldiers' own education. The occupation–post–gender–term length–arrival time fixed effects are required for conditional random assignment and additionally control for the portion of common shocks that impact all units within a post and time period but not for common shocks that differ between units at the same post at the same time.

To sum up, we face a few issues in estimating peer effects. The first—bias from selection into peer groups—is alleviated by the fact that the Army's assignment process is plausibly random. The second issue is reflection/simultaneity, which we address by taking peers' education at its value at the time they joined the Army. The third issue is concerns about mechanical bias as raised by Angrist (2014), which we resolve by averaging peer education over the peers in the company in the quarter prior to the focal soldier's

[8] We run the following regression on a hold-out sample and use the estimates to predict soldiers' future enrollments: $enroll_i = \delta X_i' + \theta_{g(i)} + \eta_i$. X_i is a vector including the individual variables in Table 2.

arrival. Thus, having addressed these concerns, we estimate:

$$enrollment_{iu} = \alpha_0 + \alpha_1 \overline{initial\ ed}_{u,t_i-1} + \alpha_2 X_{i,u} + \alpha_3 \overline{X}_{u,t_i-1} + \theta_{g(i)} + \epsilon_{iut} \tag{4}$$

Despite group assignment and treatment being determined prior to arrival, the estimates of α_1 may still be biased by common shocks. Generally, anything that impacts the prior education of a soldier's peers and the soldier's own education will bias the estimate of α_1. The restriction of our sample to BCTs limits the influence of any common shocks related to deployments and workplace environment. Moreover, the post and quarter-of-arrival components of the fixed effects limit a possible influence from location- and time-based common shocks (e.g., assignment to a base closer to institutions of higher education). Finally, since initial education is taken at its value prior to the soldier joining the Army and assignment to units is random, it cannot be correlated with service-related shocks such as impacts from commanders or deployments. Hence, assuming there are no relevant omitted peer characteristics, the estimates from equation 4 using initial education should be unbiased.

5 Results

5.1 Does Having More Educated Peers Increase Soldiers' Education?

Soldiers with more educated peers are indeed likelier to both enroll in and graduate from college. Table 3 shows results from our regressing a soldier college attendance/graduation dummy on peer education. Columns (1) and (2) show the results for enrollment outcomes and columns (3) and (4) the results for graduation outcomes. Column (1) Panel A shows that a 10 p.p. increase in peer education at entry is associated with a 0.195 p.p. increase in soldiers enrolling in any college courses within 1 year of joining their company. Our preferred specification in column (2) includes controls for whether the focal soldier had enrolled in any college course prior to joining the Army along with his AFQT score, race, age, martial status, and a dummy for whether he has any dependents. We find that a 10 p.p. increase in peers' initial education is associated with an increase in college attendance within one year of arrival to the company of 0.185 p.p. The impact of peer education increases to 0.610 p.p. for enrollment within three years of arrival. This impact is equivalent to 3.4% of the dependent variable mean and is statistically different from zero at the 1% level.

Peers have an even larger relative impact on soldiers' graduations. From column (4), a 10 p.p. increase in peers' initial education is associated with an increase of 0.118 p.p. in degree attainment within three years of arrival. This impact is equivalent to 18% of the dependent variable mean and is statistically different from zero at the 1% level.

We next turn our attention to the long run: The magnitude of the effects of peers on enrollments at year 4 falls yet remains largely stable for the period after that (Figure 3a). The fact that peers have and impact years after the dissolution of the peer group suggests that having more educated peers prompts college enrollments among soldiers who otherwise would not have enrolled, instead of simply shifting enrollments that would have occurred anyway forward in time. At the same time, the drop in the peer effect at year 4 suggests that there is some intertemporal substitution of initial enrollments from the long run (4+ years after arrival) to when soldiers are part of their initial peer groups.

In the long run, peers have no clear impact on soldiers' likelihood of earning a degree (Figure 3b). While some estimates for the years after year 3 are similar in magnitude to the short-run estimates, they are imprecise and thus offer no clear evidence of a long-term increase in the number of soldiers with degrees. Thus we are unable to make claims about whether the short-run peer effect represents intertemporal substitution or a permanent increase in degree receipt.

Estimates reported so far do not condition the characteristics of peer groups other than education. Companies with a higher fraction of soldiers with prior college enrollments also vary on other dimensions. To identify the impact of peer education separate from other correlated peer characteristics, we re-run our main analysis including controls for peer race, sex, AFQT score, marital status, and share with dependents, calculated the same way as peer education. Table A2 column (4) shows that conditionally on other observable characteristics of peers, a 10 p.p. increase in peers' initial education is associated with an increase in college attendance within three years of arrival to the company of 0.440 p.p. The difference between this estimate and our prior result is largely due to the correlation between peer education and peer sex. Female soldiers are likelier to have prior college experience and focal soldiers are likelier to enroll when they have more women in their peer group. Table A3 shows a similar pattern for degree attainment. Section 6 discusses potential mechanisms driving previously discussed results.

5.2 Individual Heterogeneity

We next turn to examining heterogeneous peers effects by focal soldiers' characteristics (race, sex, AFQT test scores, and prior college experience) finding suggestive evidence of heterogeneous peer effects on all dimensions tested including that peers have greater influence over traditionally disadvantaged students (non-white and low testing students). Table 4 shows heterogeneous level effects of peer prior enrollments based on all dimensions of soldier characteristics we tested with Col (1) reporting the peer effect for the comparison group and Col (2) shows the coefficient on the interaction of peer education and the demographic variable. However, because some groups are much more likely to enroll independent of peers' education differences between groups in percent terms differs from the level differences.

As shown in Table 4, peer education has stronger level impacts on the enrollments of women, soldiers of color, older soldiers, soldiers with prior enrollments, and potentially low AFQT test score soldiers. A ten p.p. increase in peers' prior enrollments increases men's three year enrollment likelihood by 0.53 p.p. and increases women's enrollment likelihood by 2.05 p.p. Similarly, peers have a roughly four times larger impact for married soldiers compared to non-married soldiers, three times larger impact for non-white soldiers compared to white soldiers, twice as larger an impact for the lowest AFQT scoring soldiers (TSC[9] 4/5) compared to the median group of soldiers (TSC 3A) and twice as large for soldiers with prior enrollments compared to those withtout prior enrollments.

Some of the level differences in the strength of peer effects for different groups is likely reflective of differences in groups' underlying propensity to enroll. Group dependent variable means are reported in brackets showing that while the peer effect for women is four times larger than that for men, women are also roughly three times more likely to enroll independent of peer education. While differences in group enrollment rates are less extreme for other groups, married, and non-white soldiers do have larger level peer effects and are more likely to enroll independent of peer effects compared to unmarried and white soldiers. Thus the largest heterogeneous level peer effects are less extreme when measured relative to group mean enrollment rates.

The one characteristic for which the soldiers least likely to enroll are most influence by peers is on test scores. The higher TSC soldiers are the more likely to enroll while

[9] AFQT TSC's are Test Score Categories which determine Army applicant's eligibility for service and enlistment bonuses. TSC 4/5 applicants require a waiver to join the Army for most of the sample. Only TSC 3A and above applicants are eligible for enlistment bonuses.

having the smaller estimated peer effects. This pattern along with the heterogeneity by race, matches findings in mentoring interventions that find largest effects of mentoring on lower ability and lower socio-economic status students' enrollments (Falk et al., 2026; Rodríguez-Planas, 2012; Resnjanskij et al., 2024). This will help inform our discussion of mechanisms in section 6.

5.3 Comparison to Education Peer Effects in Other Settings

The peer effects we find here are smaller—albeit not drastically—than peer effects on enrollment found in other settings. Changes in community income sharing on Israeli kibbutzim during the 1990s lead non-kibbutz high school students to experience an average increase in peer postsecondary attendance of 13.8 p.p., which caused a 4 p.p. increase in enrollments within twelve years of high school graduation (Abramitzky et al., 2021). High school students in Chile with a close neighbor who enrolled in college because of variation in student loan criteria were 10 p.p. likelier to enroll in college following high school (Barrios-Fernández, 2022). We rescale the estimates from the kibbutz and Chilean lending settings to make them roughly comparable with our results; those studies find that a 10 p.p. increase in peer group enrollments led to 2.9 p.p. and 1.0 p.p. increases in enrollments, respectively. In turn, we estimate a 0.61 p.p. increase in soldier enrollments within three years from a 10 p.p. increase in peer enrollment.

There are several potential reasons the peer effects we find are smaller. First, the returns to education are likely lower for soldiers than for high school students on average. Older people have fewer future years in the labor market in expectation to accrue benefits from college education and offset the potential costs and/or lost wages. Additionally, the signaling value of a degree may be lower for soldiers than for high schoolers on average. Being a veteran provides its own signal to civilian employers, which may reduce the value of the signal provided by a college degree. Thus, differences in the benefits of college enrollment could mute the role of peers in enrollment decisions.

Furthermore, divergences in our research setting may drive the differences in results. One way peer effects may impact enrollment decisions is by reducing the uncertainty around the costs and benefits of college enrollment. If there is greater uncertainty surrounding college enrollment in Chile or Israel, this could explain the differences in the estimate magnitudes.

6 Mechanisms

We next attempt to disentangle the mechanisms through which the peer effect operates. We consider two main channels through which peers may influence soldier enrollments: college benefits and college costs. To explore whether the peer effects are driven by changing perceptions of the relative costs and benefits of enrollment, we discuss the evolution of the peer effect over time. Changes to soldiers' Army provided education benefits coincide with the sharp decline in the enrollment peer effect between three and four years after focal soldiers' arrival to their peer groups (Figure 3a). While having more educated peers causes more soldiers to enroll, much of the effect appears to be attributable to intertemporal substitution. Thus, any explanation of how the peer effect functions must account for such temporal changes in college enrollment decisions.

6.1 Short-Run Costs

The intertemporal substitution of enrollments is most plausibly explained by short-run decreases in the soldiers' perceived costs of attending college. The dynamics of the peer effect over time suggest that soldiers who would enroll in college in the long run are likelier to enroll in college in the short run if they have more educated peers but that soldiers who are unlikely to ever enroll in college are less affected by their peers. This pattern is consistent with more educated peers lowering soldiers' beliefs over the costs of college in the short but not the long run and with their having less impact on soldiers' belief over the benefits of college. This temporary decrease in perceived college costs could be driven by spillovers in in-service TA benefit take-up or by a role model effect from soldiers seeing other soldiers successfully balance college classes with active-duty service.

Soldiers learning about TA represents an information shock that creates a temporary decrease in the cost of college. As described in Section 2.3, TA is available to all active-duty soldiers but cannot be used after a soldier has separated from the Army. Additionally, soldiers earn full PGIB benefits after three years of service. The value of PGIB benefits is weakly greater than that of TA, so the latter has little impact on the long-run cost of college attendance. Thus, as long as soldiers with more educated peers are likelier to learn about TA but not the PGIB, the changing cost of college enrollment created by TA and PGIB benefits plausibly explain the patterns we observe in Figure 3a.

An alternative explanation is that there exists a role model/mentoring effect, whereby

soldiers who want to enroll in college but worry they cannot or don't know how to balance school with full-time service are likelier to enroll if they see their peers juggling both. Similar to the TA mechanism, such a role model effect would decrease the cost of enrollment during military service with less impact on the cost of enrollment as a civilian. Marginal soldiers in less educated companies would thus enroll in college after leaving the Army, while those in more educated companies would enroll while still in the Army. The fact that our test score heterogeneity analysis finding strongest peer effects for lower TSC soldiers mirrors heterogeneity found in mentoring interventions provides suggestive evidence that a role modeling or mentoring mechanism is in part driving our results. However, this mechanism would not clearly explain the sharp decrease in the effect size at year 4. While the continuous turnover of the peer group does suggest that any role model effect may decay over time, it is not clear why it would sharply decline when the focal soldier leaves his peer group. Thus, while role model effects may exist, they likely operate alongside other channels.

Alternative accounts that involve peers shaping soldiers' beliefs about the benefits of college enrollment fail to cleanly explain the reduced long-run increase in enrollments. If having more educated peers makes a soldier believe the benefits of enrollment are higher, such a peer effect would be unlikely to disappear after three years: In contrast to the changes in the cost of attendance, there is no change in the expected benefits of enrollment around three years of service. There is no shock to the expected benefits of enrollment that would cause soldiers assigned to low-education peer groups who would have enrolled had they been assigned to high-education peer groups to start enrolling after three years in the peer group. However we cannot rule out that changes in the perceived benefits of college contribute to the long run persistence of our results.

6.2 Network Effects

A different avenue through which the peer effect may operate is by changing soldiers' beliefs over the costs and benefits of enrollment at specific schools rather than of enrollment in general—an effect that could be attributable to information acquired through soldiers' new network of peers. To test for such network effects, we examine whether soldiers are likelier to attend the same college as their peers. We first measure whether an observed soldier's first college enrollment after arrival to his peer group is at a college that any member of his peer group had previously attended, and then we take the average across all observed soldiers. We then perform randomization inference, randomly assigning sol-

diers to a peer group from the set of peer groups at the same post and quarter as the focal soldier's original peer group, restricting to peer groups with at least one junior soldier with the same occupation as the focal soldier (the set of companies to which a soldier plausibly could have been assigned). We measure the distribution of the same statistic in these placebo samples.

Soldiers are approximately 8.8 p.p. likelier, conditional on location and time, to attend a school that their peers had attended. Figure 4 shows the distribution of the same school statistic from 2,500 placebo samples, and the vertical line shows the observed statistic. In the actual data, the fraction of focal soldiers who attend an institution attended by a peer is 0.357, and the average in the placebo data is 0.269[10]. Thus, soldiers are much likelier to enroll in the same college as their peers. This result is consistent with prior work that finds positive network effects in college application behavior (Gazmuri and Prager, 2024).

We take the results above as suggestive evidence that the overall peer effects on enrollment and graduation are at least partly driven by a network-specific role model effect. If the reduction in perceived cost of attendance was driven solely by differential learning about TA, we would expect to observe no network effects since TA can be used at any Title IV institution. It is possible that peers reduce the transaction cost of attending specific schools by helping soldiers navigate policies surrounding admissions/enrollment and transfer of previously earned credits or by informing soldiers about specific classes/programs that are easier to balance with their duties as a soldier. The existence of such network effects on where soldiers attend college suggests that a soldier's decision whether to attend is also influenced by his peers' behaviors, not just financial incentive spillovers.

7 Conclusion

We find that soldiers randomly assigned to peer groups with more soldiers with prior college experience are likelier to enroll in and graduate from postsecondary institutions. Part of this peer effect is attributable to a shift of future enrollment/degree earning forward in time. The impact of peer enrollments is stronger for lower ability soldiers. Having more educated peers most likely increases enrollments and graduations by decreasing soldiers' beliefs over the costs of attending college through both learning about Army continuing education benefits and mentoring.

[10]The nontrivial placebo mean of 0.269 is likely due to soldiers stationed at the same location attending the same local institutions.

To put a dollar figure on our enrollment estimates, we compare our results to the impacts of the Post-9/11 GI Bill's increase in education benefits. Research has found that the passage of the PGIB increased the GI education benefits received by Army soldiers on average by $7,100 relative to the benefits received under the previous benefit regime, the Montgomery GI Bill (Barr et al., 2021). This increase in benefits increased postsecondary enrollments within 2 years of soldiers' separation from the Army by 0.25 p.p. (Barr et al., 2021). Using these findings to state our estimates in approximate dollar terms, we find that the 0.445 p.p. rise in 2-year enrollments from a 10 p.p. increase in peers' prior college experience is similar to the impact of an increase in GI education benefits of $12,600[11] per enlisted soldier. With the Army averaging approximately 60,000 new enlistments annually, the equivalent total GI education subsidy cost would be $756 million annually. This amount is just over the $675 million the Army budgeted for all recruiting incentives[12] in fiscal year 2025 (U.S. Army / Assistant Secretary of the Army, Financial Management & Comptroller, 2025). Thus, replicating peers' impacts on enrollment by means of GI benefits would likely require a state fiscal commitment approximately equivalent to the Army's entire annual enlistment bonus budget.

Whether soldiers benefit from peer-induced education likely depends on whether those enrollments occur while the soldier is still serving in the Army. Prior work has found that the value of marginal enrollments by veterans is, on net, negative because of loss of experience (Barr et al., 2021). However, our results suggest that having more educated peers increases enrollments while soldiers are still serving in the Army. This should increase soldiers' earnings from increased years of education and degree attainment, without the opportunity cost of less workplace experience. Estimating peer effects impact on expected earnings is an area for future research.

Our findings are limited by the potential uniqueness of the US military setting. In addition to working together, workplace peers in the Army eat, sleep, and pursue leisure together far more often than most civilian coworkers. Given the greater depth of interactions between soldiers than between civilian coworkers, our estimates likely represent an upper bound on peer effects on college enrollment in the civilian labor force (assuming a monotonic relationship between intensity of interactions and peer effects). Nevertheless, our results are valid for the approximately three million veterans who have served since September 11, 2001 (Holder, 2018).

[11] $\$12,600 \approx \$7100/0.25 * 0.445$

[12] Recruiting incentives are enlistment bonuses paid to soldiers with high test scores or specific skills, those willing to ship to basic training quicker than normal, etc.

Furthermore, the education benefits provided by the military are more generous than those provided by civilian employers. On one hand, the TA program for currently enlisted soldiers is not unique to the Army. The Employer-Provided Education Assistance program allows civilian employers to provided up $5,250 in annual tax-free education assistance to employees (Internal Revenue Service, 2025). This is a widely used program with civilian employers provided benefits costing an estimated $1.3 billion federal tax expenditure[13] in 2019 (Joint Committee On Taxation, 2019). However, the generosity of the GI Bill is a unique benefit of service. The impact of PGIB benefits on our results is ambiguous. If soldiers join the Army already committed to using the generous PGIB benefits, this might insulate soldiers' enrollment decisions from their peers' experiences and attenuate our results. However, that the PGIB benefits substantially lower the marginal cost of college enrollment for soldiers could make them more reactive to small changes in the perceived benefits of college enrollment and could thus amplify the peer effect.

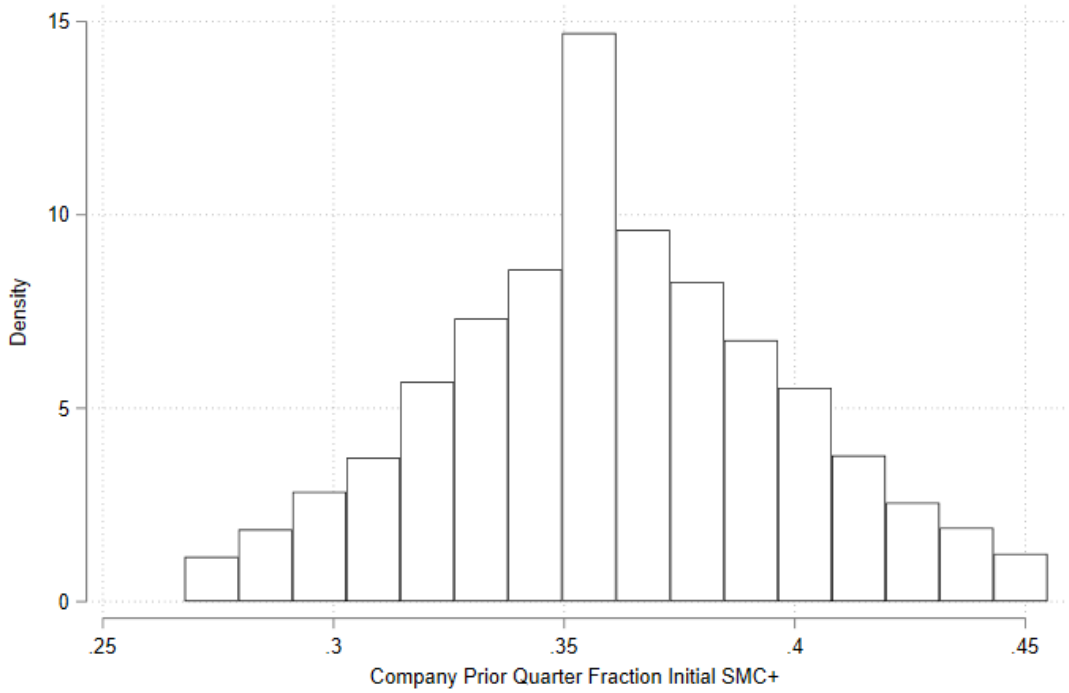
Our results have implications for policymakers and employers who want to encourage employees to attend college. Recruiting employees with college experience can be a potentially low-cost alternative to providing/expanding continuing education benefits. In the Army, increasing the share of soldiers with college experience by 10 p.p. would induce an increase in soldier college enrollments on the extensive margin of a magnitude similar to the effect of a $756-million-dollar increase in annual education benefit payments. Interventions that manipulate peer group composition may also be comparatively low cost, though prior attempts to manipulate peer groups on the basis of reduced-form estimates of peer effects have found this method has difficulty achieving results in practice (Carrell et al., 2009, 2013).

A complete analysis of the impact of exposure to more educated peers would require the researcher to account for changes in *where*—in addition to whether and when—soldiers enroll. We show initial findings of small positive network effects within peer groups; however, we do not speak to the quality of the institution soldiers attend. The impact of peers could change the quality of institutions soldiers attend in addition to the timing of enrollments. Additionally, because, as we described above, the Army is a unique workplace, future research could test how our findings generalize to other workplaces.

[13](This reflects the estimated forgone federal tax revenue, not the total employer spending.

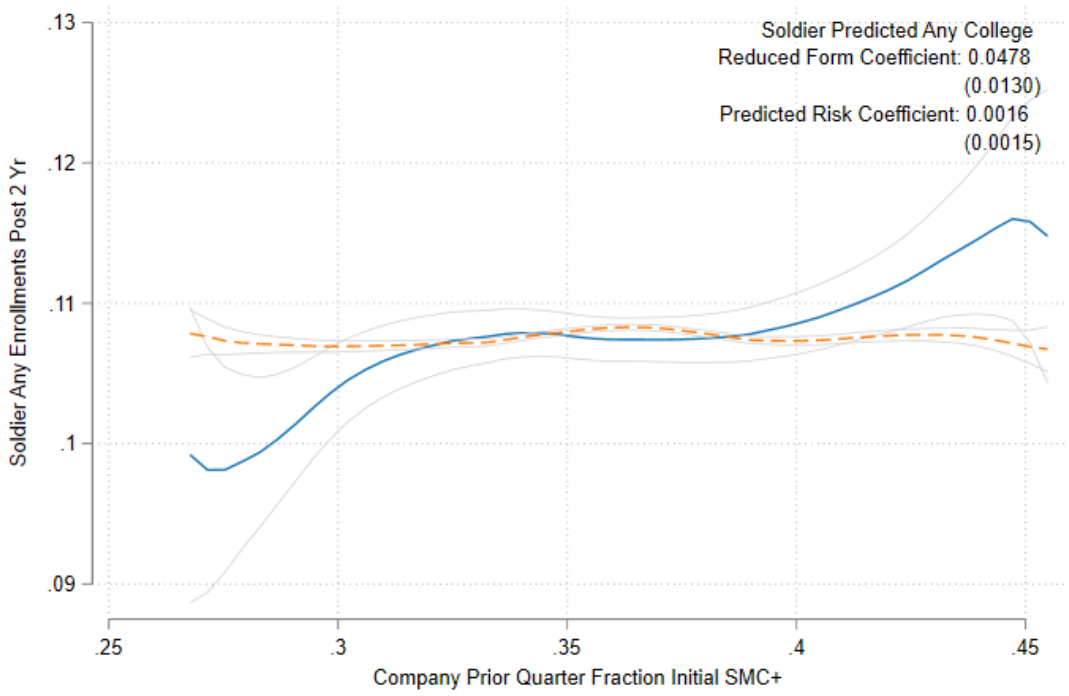
Figures

Figure 1: Distribution of Peer Initial Education



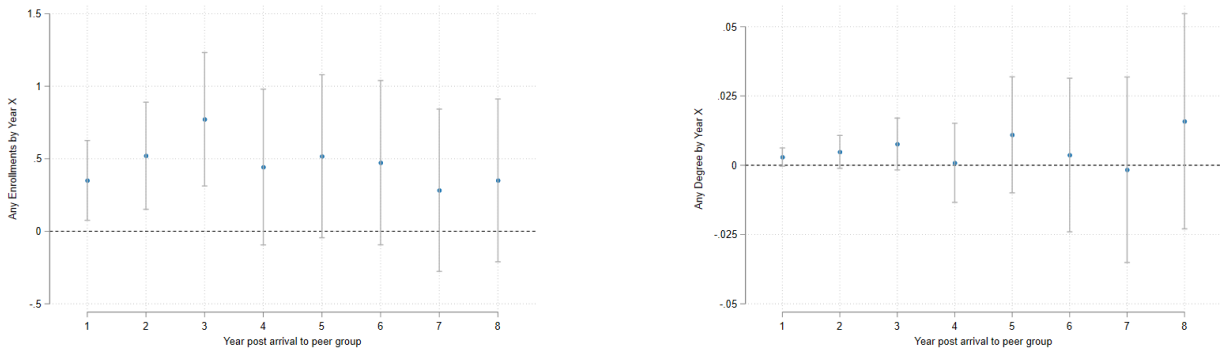
Notes: Histogram shows the distribution of the initial education of peers in a soldier's company in the quarter prior to that soldier's arrival, residualized on the interaction of soldier occupation, post, quarter of arrival, gender, and contract length. We added the variable mean added back for interpretability. Peer education is defined in equation 1.

Figure 2: Positive Association of Peer Initial Education with Education After 2 years but Not with Predicted Education



Notes: The solid blue line is from a local linear regression of soldiers' 2-year college attendance on the peer measure: the share of enlisted soldiers in the company the quarter prior to the focal soldier's arrival who had some college experience when they enlisted (equation 1). The dashed orange line is from a local linear regression of soldiers' predicted 2-year college attendance on the peer measure. Soldiers' future enrollments are predicted with soldier race, age, AFQT score, marital status, an indicator for having a dependent child, and an indicator for having enrolled in any college course prior to joining the Army, and fixed effects that include the interaction of duty station, gender, occupation, contract length, and quarter of arrival using a hold-out sample. Coefficients from linear regressions are reported in the top right corner with unit–arrival quarter clustered standard errors in parentheses. All variables graphed are residualized on the interaction of soldier occupation, post, quarter of arrival, gender, and contract length centered at the variable mean.

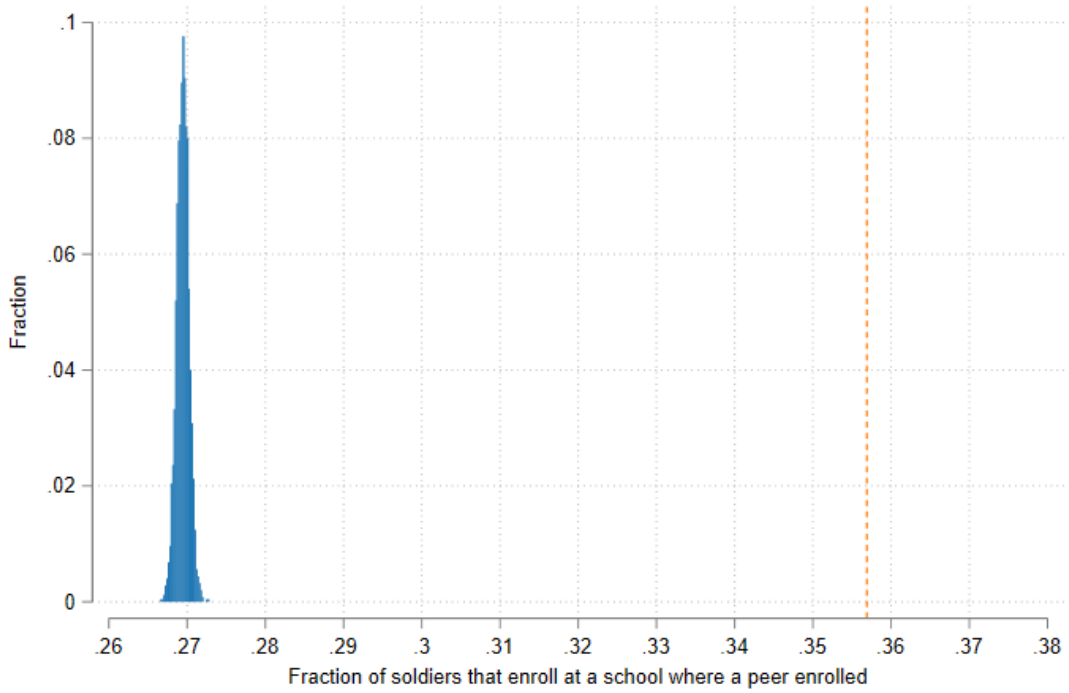
Figure 3: Positive Association of Peer Initial Education with Enrollments and Degree Completion



(a) Enrollments **(b)** Degrees

Notes: Impact of a 10 p.p. increase in the share of enlisted soldiers in the company the quarter prior to the focal soldier's arrival who had some college experience when they enlisted on the likelihood of the focal soldier taking any college courses/earning a degree within X years of arrival to the company. All regressions include individual controls (soldier race, age, AFQT score, marital status, an indicator for having dependents, and an indicator for having enrolled in any college course prior to joining the Army) and fixed effects for the interaction of duty station, gender, occupation, contract length, and quarter of arrival, with standard errors clustered at the company–quarter-of-arrival level. All are regressions estimated on the same balanced panel of soldiers for whom at least eight years of outcomes are observed.

Figure 4: Focal Soldiers Are Ex Ante Less Likely to Attend Institutions Their Peers Attended



Notes: The orange line is the fraction of soldiers whose first institution attended after joining their company (conditional on ever enrolling after joining the peer group) is a school that a peer had attended prior to the focal soldier's arrival. The blue histogram is the distribution of the same statistic measured from 2,500 randomly drawn placebo companies. Placebo group members are drawn from the pool of soldiers stationed at the same post in the same quarter as the focal soldier's original peer group. Placebo companies preserve original companies' group size and rank–occupation mix.

Tables

Table 1: Summary Statistics

	Mean	Standard Deviation
	Panel A: Individual Any Enrollments By ($\times 100$):	
Post 1 Year	4.99	21.78
Post 2 Year	11.82	32.28
Post 3 Year	19.38	39.53
Post 4 Year	32.92	46.99
Post 5 Year	42.74	49.47
	Panel B: Individual Any Degree By ($\times 100$):	
Post 1 Year	0.12	3.41
Post 2 Year	0.31	5.53
Post 3 Year	0.74	8.56
Post 4 Year	1.73	13.05
Post 5 Year	3.68	18.82
	Panel C: Company Peer Measure (Treatment)	
Peer Education at Entry	0.365	0.080
	Panel D: Individual Covariates	
Female	0.080	0.271
White	0.635	0.481
Black	0.158	0.365
Hispanic	0.152	0.359
Other Race	0.056	0.229
AFQT	56	18
Married	0.126	0.332
Any Dependents	0.149	0.356
Any Prior Enrollments	0.361	0.480

Notes: The data are for first-term junior enlisted soldiers assigned to nonheadquarters companies in BCTs who enlisted without a postsecondary degree between 2005 and 2019. Panel A(B) presents the fraction of soldiers who enroll in at least one college course (complete a degree) in the year(s) following arrival to the company along with the standard deviation. Panel C presents the company average of an indicator for whether a soldier has ever taken a college course as defined in equation 1. Peer group membership is determined in the quarter prior to the observed soldier joining the company. Panel D provides means and standard deviations of observed soldier characteristics at the time of enlistment.

Table 2: Balance Table: Soldiers Assigned to BCTs

	Peer Education at Entry
	(1)
Black $\times 100$	-0.160
	(0.145)
Hispanic $\times 100$	0.104
	(0.158)
Other Race $\times 100$	0.109
	(0.097)
Age	-0.001
	(0.018)
AFQT	0.050
	(0.070)
Married $\times 100$	-0.058
	(0.146)
Any Dependent $\times 100$	-0.152
	(0.156)
Any Prior Enrollment $\times 100$	0.484**
	(0.204)
Observations	216,886
P-value on Joint Test	0.162

Notes: This balance table reports the results of our regressing each soldier characteristic at the time they first entered the Army on different instruments ($X_i = \beta_0 + \beta_1 \overline{initial\ ed}_{u,t_i-1} + \theta_{g(i)} + \eta_i$) with the peer variable defined as in equation 1). The sample is restricted to first-term junior enlisted soldiers assigned to nonheadquarters companies in BCTs. $\theta_g(i)$ are fixed effects interacting duty station, gender, occupation, contract length, and quarter of arrival at the unit. The peer measure is constructed from soldiers in the company in the quarter prior to the soldier's arrival. The joint test evaluates the hypothesis that all coefficients in the column are equal to zero in a seemingly unrelated regression. Binary variables (race, education, married, and any dependent) are multiplied by 100. AFQT is a test individuals take to join the military that measures arithmetic and verbal reasoning skills. Standard errors are clustered at the level of company–arrival quarter, which is the level of treatment assignment. Coefficients represent the impact of a 10 p.p. increase in each peer measure.
$*$ Significant at the 10% level.
$**$ Significant at the 5% level.
$***$ Significant at the 1% level.

Table 3: Peer Effects on Soldier Enrollment and Degree Attainment Within X Years of Joining the Peer Group

	Dep Var: Any Enrollment × 100		Dep Var: Any Degree × 100	
	No Controls	Individual Controls	No Controls	Individual Controls
	(1)	(2)	(3)	(4)
		Panel A: Post 1 year		
	0.195*	0.185*	0.026*	0.025*
	(0.100)	(0.100)	(0.013)	(0.013)
Observations	192,386	192,386	192,386	192,386
Dep Var Mean	4.416	4.416	0.082	0.082
R^2	0.29	0.29	0.20	0.20
		Panel B: Post 2 year		
	0.462***	0.445***	0.060**	0.059**
	(0.149)	(0.148)	(0.024)	(0.024)
Observations	192,386	192,386	192,386	192,386
Dep Var Mean	10.936	10.936	0.255	0.255
R^2	0.23	0.24	0.20	0.20
		Panel C: Post 3 year		
	0.637***	0.610***	0.121***	0.118***
	(0.183)	(0.182)	(0.040)	(0.040)
Observations	192,386	192,386	192,386	192,386
Dep Var Mean	18.115	18.115	0.651	0.651
R^2	0.21	0.22	0.17	0.18

Notes: Impact of a 10 p.p. increase in the share of enlisted soldiers in the company the quarter prior to the focal soldier's arrival who had some college experience when they enlisted on the likelihood of that soldier taking any college courses/earning any degree within X years of arrival to the company. All columns include fixed effects for the interaction of duty station, gender, occupation, contract length, and quarter of arrival, with standard errors clustered at the company–quarter-of-arrival level. Individual controls include soldier race, age, AFQT score, marital status, an indicator for having dependents, and an indicator for having enrolled in any college course prior to joining the Army. All regressions are estimated on the same balanced panel of soldiers for whom at least three years of outcomes are observed.

$*$ Significant at the 10% level.

$**$ Significant at the 5% level.

$***$ Significant at the 1% level.

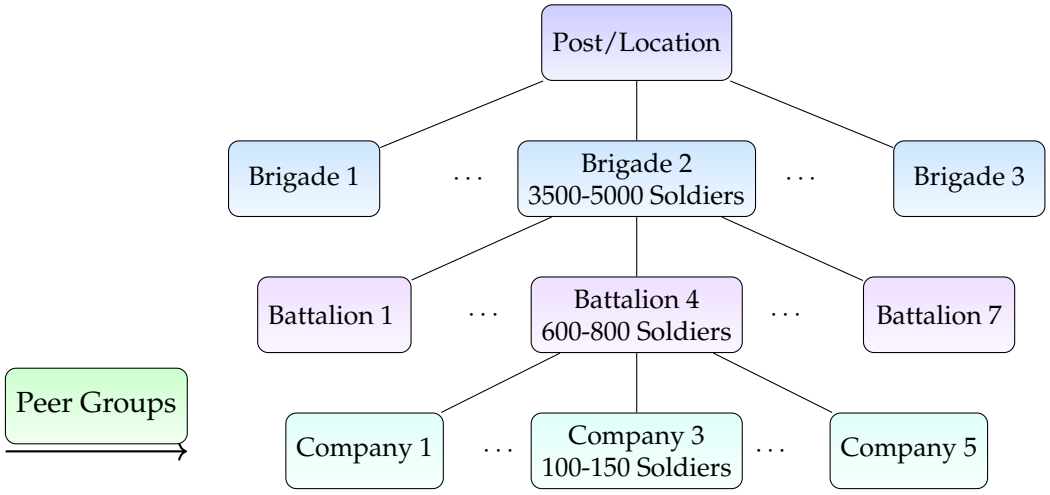
Table 4: Heterogeneity of Enrollment Peer Effect

	Peer Fraction Prior Enrollment (1)	Peer Fraction Prior Enrollment $\times X_{i,\tau_i}$ (2)
Main Result	0.610	
	(0.175)	
Female	0.526***	1.521**
	(0.181)	(0.746)
	[16.641]	[41.431]
Married	0.492***	1.353**
	(0.188)	(0.637)
	[17.370]	[20.977]
White	1.224***	-0.921**
	(0.317)	(0.387)
	[20.979]	[16.049]
Age	0.637***	0.158***
	(0.177)	(0.036)
	[18.113]	
Prior Enrollment	0.459**	0.453
	(0.223)	(0.385)
	[14.206]	[24.111]
AFQT TSC 1		-1.671
		(1.414)
		[21.992]
AFQT TSC 2		-0.245
		(0.522)
		[19.804]
AFQT TSC 3A	0.667*	
	(0.389)	
	[16.010]	
AFQT TSC 3B		0.169
		(0.481)
		[16.815]
AFQT TSC 4/5		0.603
		(1.501)
		[12.162]

Notes: Impact of a 10 p.p. increase in the share of enlisted soldiers in the company the quarter prior to the focal soldier's arrival who had some college experience when they enlisted on the likelihood of that soldier taking any college courses/earning any degree within X years of arrival to the company. All regressions include fixed effects for the interaction of heterogeneity variable, duty station, gender, occupation, contract length, and quarter of arrival, with standard errors clustered at the company–quarter-of-arrival level. Samples are slightly different for each regression due to dropping singleton observation within fixed effect groups. Individual controls include soldier race, age, AFQT score, marital status, an indicator for having dependents, and an indicator for having enrolled in any college course prior to joining the Army. Models are fully interacted with the demographic variable of interest. Column (1) reports peer effect for the comparison group. Column (2) reports the interaction of peer eduction and the demographic variable. Age variable is continuous and mean 0. Group means are reported in brackets. AFQT TSC are Test Score Categories which determine Army applicants eligibility for service and enlistment bonuses. TSC 4/5 applicants require a waiver to join. Only TSC 1, 2, and 3A applicants are eligible for enlistment bonuses.

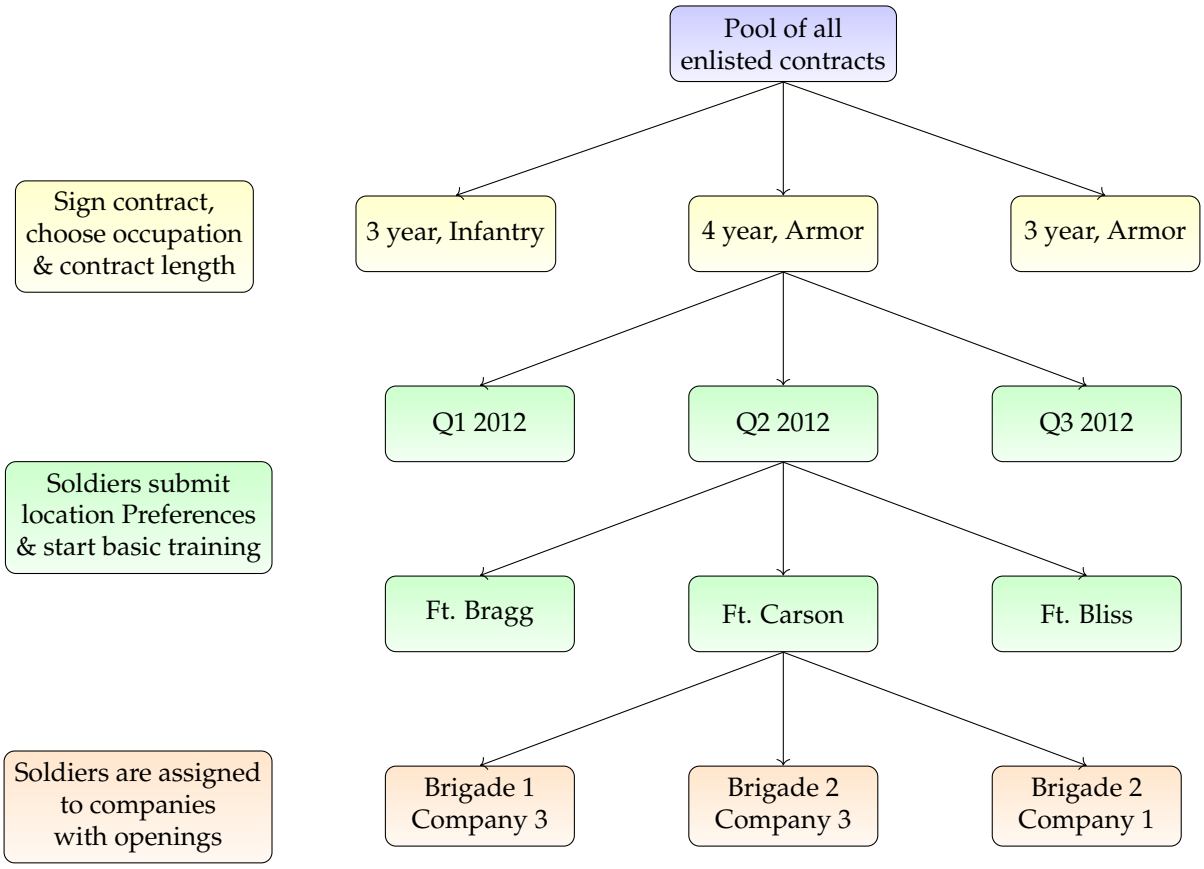
Figures

Figure A1: Organizational Chart Example



Notes: Within any post, there are multiple brigades. Within each brigade, there are five to six battalions. Each battalion has three to five companies. Peer groups are defined as a soldier's company. Enlisted soldiers spend most of their time working, eating, and living with other members of their company.

Figure A2: Enlistment Timeline



Notes: Figure shows a simplified representation of different elements of the enlistment process over which soldiers have input. Soldiers initially sign contracts that set their occupation and contract length. They then submit location preferences and start basic training (which determines when they can join an operational unit). Then, on the basis of location, availability and gender, soldiers are randomly assigned to companies with openings. Thus, conditional on contract terms, location of assignment, and quarter of arrival, soldiers are randomly assigned to companies.

Tables

Table A1: Sample Restrictions

Sample	Observations
Full Sample	701,909
Soldiers assigned to BCTs	330,440
Exclude:	
Head Quarters Companies	73,683
Non-Commissioned Officers	34
Abnormal Contract Lengths	2,901
Post-Secondary Degree Holders	12,922
Singleton Fixed Effects	24,014
Analysis Sample	216,886

Notes: we restrict to soldiers who serve in largely similar companies. To start, we restrict to soldiers serving in brigade combat teams. We then exlude soldiers assigned to headquarters companies, soldiers who enlisted as noncommissioned officers, and soldiers with abnormal contract lengths (less than 3 years or greater than 6 years). We exclude soldiers who earned a degree prior to enlisting as their decision to enroll in college is different from that of soldiers without a degree. Finally, we exclude soldiers who are singletons within duty station, gender, occupation, contract length, and quarter of arrival at the unit, as conditioning on the interaction of these variables is necessary to claim random assignment to peer groups.

Table A2: Impact of a 10 p.p. Increase in Share of Peers with Some College Experience on Soldier Enrollments Within X Years of Joining the Peer Group

	None	Race	Sex	Family	AFQT	All
	(1)	(2)	(3)	(4)	(5)	(6)
Peer Prior Enrollment	0.610***	0.598***	0.471**	0.565***	0.588***	0.441**
	(0.182)	(0.183)	(0.187)	(0.183)	(0.190)	(0.195)
Fraction Black		0.186				-0.071
		(0.290)				(0.338)
Fraction Hispanic		-0.016				0.042
		(0.313)				(0.337)
Fraction Other Race		-0.427				-0.408
		(0.474)				(0.485)
Fraction Female			0.903***			0.782**
			(0.309)			(0.338)
Fraction Married				0.511**		0.461**
				(0.220)		(0.225)
Fraction Divorced				0.871		0.567
				(0.568)		(0.596)
Fraction with Children				-0.023		-0.020
				(0.241)		(0.246)
Average AFQT					0.011	0.010
					(0.031)	(0.033)
Observations	192,386	192,386	192,386	192,386	192,386	192,386
Dep Var Mean	18.115	18.115	18.115	18.115	18.115	18.115
R^2	0.22	0.22	0.22	0.22	0.22	0.22

Notes: Impact of a 10 p.p. increase in the share of enlisted soldiers in the company the quarter prior to arrival with some college experience when they enlisted on the likelihood of the focal soldier taking any college courses within X years of arrival to the company. Column 1 shows the simple correlation between future enrollments and peer education with random assignment fixed effects and individual controls with standard errors clustered at the company–quarter-of-arrival level. Columns 2–6 add peer controls. Random assignment fixed effects are the interaction of duty station, gender, occupation, contract length, and quarter of arrival. Individual controls include soldier race, age, AFQT score, marital status, and an indicator for having dependents. Peer controls include peer race, marriage status, share with dependents, and AFQT score. All are regressions estimated on the same balanced panel of soldiers for whom at least three years of outcomes are observed.

$*$ Significant at the 10% level.

$**$ Significant at the 5% level.

$***$ Significant at the 1% level.

Table A3: Impact of a 10 p.p. Increase in Share of Peers with Some College Experience on Soldier Degrees Within X Years of Joining the Peer Group

	None	Race	Sex	Family	AFQT	All
	(1)	(2)	(3)	(4)	(5)	(6)
Peer Prior Enrollment	0.118***	0.123***	0.098**	0.120***	0.106***	0.099**
	(0.040)	(0.040)	(0.040)	(0.040)	(0.041)	(0.041)
Fraction Black		-0.074				-0.124*
		(0.064)				(0.071)
Fraction Hispanic		0.007				-0.016
		(0.063)				(0.066)
Fraction Other Race		0.078				0.038
		(0.103)				(0.104)
Fraction Female			0.131			0.180**
			(0.081)			(0.087)
Fraction Married				-0.062		-0.071**
				(0.049)		(0.049)
Fraction Divorced				0.024		-0.037
				(0.116)		(0.117)
Fraction with Children				0.003		0.003
				(0.053)		(0.053)
Average AFQT					0.006	0.001
					(0.006)	(0.006)
Observations	192,386	192,386	192,386	192,386	192,386	192,386
Dep Var Mean	0.651	0.651	0.651	0.651	0.651	0.651
R^2	0.18	0.18	0.18	0.18	0.18	0.18

Notes: Impact of a 10 p.p. increase in the share of enlisted soldiers in the company the quarter prior to arrival with some college experience when they enlisted on the likelihood of the focal soldier earning any college degree within X years of arrival to the company. Column 1 shows the simple correlation between future enrollments and peer education with random assignment fixed effects and individual controls with standard errors clustered at the company–quarter-of-arrival level. Columns 2–6 add peer controls. Random assignment fixed effects are the interaction of duty station, gender, occupation, contract length, and quarter of arrival. Individual controls include soldier race, age, AFQT score, marital status, and an indicator for having dependents. Peer controls include peer race, marital status, share with dependents, and AFQT score. All regressions are estimated on the same balanced panel of soldiers for whom at least three years of outcomes are observed.

$*$ Significant at the 10% level.

$**$ Significant at the 5% level.

$***$ Significant at the 1% level.

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