Active Choice Framing and Intergenerational Education Benefits: Evidence from the Field

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Abstract

The Post-9/11 GI Bill allows service members to transfer generous education benefits to a dependent. We run a large-scale experiment to test whether active choice framing impacts US Army service members' decision to transfer benefits. Individuals who received email messages framing GI Bill use as an active choice between own use and transfer to a family member are more likely to pursue information about the benefit than individuals receiving outreach that does not frame the decision as an active choice. While we find no overall effect of framing on transfer, active choice increases transfer among service members with graduate degrees.

JEL Classification: D15, D91, H52, I24

Introduction

Investing in a child's college education is one of the most consequential decisions that a parent can make. Among children born into the bottom quintile, students who attend college are more than twice as likely to advance to the top income quintile as adults (Chetty et al., 2017). Moreover, adults with a bachelor's degree earn 63% more than those with a high school diploma, and experience a range of non-pecuniary benefits including higher job satisfaction, lower unemployment risk, better health, and stronger social networks (Oreopoulos and Salvanes, 2011; Ma, Pender, and Welch, 2016). Nevertheless, sending a child to college can place a significant financial burden on families: low-income parents spend an average of $13,913 per year from savings, income, and personal loans to help pay for a child's college education.[1]

Instead of paying for their children's college attendance with income, savings, and loans, many parents who serve in the military have the option to transfer their Post-9/11 GI Bill (PGIB) education benefits to dependent family members. PGIB benefits cover up to four years of college tuition and include allowances for both housing and textbooks; the total package can be worth $200,000 or more. Service members must opt-in to transfer benefits while still serving on active duty and evidence suggests that transfer rates are rather low.[2,3] One potential reason is that service members intend to use the PGIB benefits for their own education after they return to civilian life, but nearly three in five Veterans who did not transfer while on active duty also did not personally use the benefits after service (Castleman, Murphy, and Skimmyhorn, 2019).

While there are a number of potential reasons for low transfer rates, two possibilities are that service members are uninformed about the benefit transfer program or that they experience

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[1] We define low income as earnings of less than $35,000 per year. Source: https://www.salliemae.com/assets/research/HAP/HowAmericaPaysforCollege2018.pdf. Accessed 5/13/2019
[2] See Castleman, Murphy, and Skimmyhorn (2019).
[3] To transfer full benefits to a dependent, service members must have served for six years and commit to an additional four years of service from the time they elect to transfer benefits.

behavioral frictions such as inattention and inertia that keep them from applying. In this study, we complete a large-scale field experiment to investigate how information and/or behavioral framing affects a consequential decision. Specifically, we conduct a randomized controlled trial (RCT) that provides service members with benefit information and frames PGIB use as an active choice (between transferring benefits to one's dependents or using the benefits to advance one's own education) and evaluates whether service members seek additional information about PGIB benefits use and eventually transfer benefits to their dependents.[4] We randomly assign 97,213 eligible active duty service members to either *control*, *information only* (Figure 1), *active choice framing* (Figure 2), or *active choice + planning prompt* (Figure A.1) treatments.[5] The key feature of the *active choice* treatments is their explicit framing of GI Bill benefits as a choice between own use and transfer to a family member, whereas the *information only* treatment provides relevant program information without imposing a choice architecture. The *active choice + planning prompt* treatment adds an (opt-in) reminder capability to the intervention. We use a unique tracking system to identify individual-level website activity responses to our treatments and data from the U.S. Department of Veterans Affairs (VA) to identify short-run PGIB transfer behavior.

Our study generates three main findings. First, the use of active choice framing increases by 1.1 percentage points (pp) the likelihood that an individual seeks out information relevant to GI Bill use or transfer. Given that only 1.8% of individuals receiving an *information only* treatment clicked in the intervention mail to advance to the program website, the active choice premium for click thru is 60%, which indicates a striking impact on individual decision process behavior. We

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[4] As we elaborate upon below, given the multi-year time interval between when soldiers we target receive the intervention materials and separate from the Army, we do not observe whether soldiers use the PGIB for their own education.

[5] Each of the service members in this sample have served at least six years of service in the Army and are eligible to transfer their benefits to a dependent family member.

find no additional effect when we add planning reminders to the active choice framing. Second, we find no impact of any treatment on short-term GI Bill transfer to a family member in our full sample – potentially because overall engagement rates with the email intervention were low[6] and perhaps owing to the complexity of the underlying decision. Finally, we observe that active choice treatment does increase benefits transfer for individuals with graduate degrees – the highest-SES subgroup from within our sample and a population for whom transfer seems particularly sensible because the opportunity cost of foregoing personal use of the PGIB is low. This result is consistent with recent work by Hurwitz and Smith (2018), who found that more affluent families and children were more responsive to earnings information in the College Scorecard. Taken together, our results suggest that active choice framing increases the likelihood that individuals take steps toward utilizing public benefits like PGIB, but that more intensive intervention strategies are likely necessary to support lower-SES individuals in actually attaining these benefits. The concentration of effects among the highest-SES segment of our sample also raises broader questions about whether informational interventions designed to level the playing field in access to educational resources may instead exacerbate inequalities, because those who are most likely to pursue these opportunities are also most responsive to information about the benefits of doing so.

Our findings contribute to literatures on active-choice framing, planning-prompts, and a growing literature on low-touch interventions in higher education. In many instances, individuals make passive choices (i.e. take no action) that differ from the choices they would make if they were required to make an active choice. For example, requiring individuals to make an active choice increases contributions to retirement savings (Carroll et al., 2009) and leads people to choose lower-cost drug plans (Beshears et al., 2019). While forcing individuals to make a choice

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[6] 1.8-3.0% of service members linked to the benefits website from the email, depending on treatment.

is often infeasible (e.g. one cannot force a response to an email), Putnam-Farr and Riis (2016) find that framing an unforced decision in an active choice framework (i.e., Yes or No) can increase engagement with a decision. Our approach builds on this research, suggesting that framing a decision as an active choice between two real options significantly increases the probability that individuals seek additional information about either option.

Additionally, our study contributes to a growing literature that examines attempts to increase educational engagement, including take-up of financial aid and benefits in higher education, with low-touch interventions. This literature is mixed as to whether low-touch interventions with parents can affect child academic outcomes (Lavecchia, Liu, and Oreopoulos, 2016; Damgaard and Nielsen, 2018). For example, Bettinger et al. (2012) find that providing parents with information about their children's eligibility for Federal Student Aid had no effect on applications and college attendance, but providing parents with assistance to complete the application for Federal Student Aid significantly increased applications and eventual college attendance and completion. Dynarski et al. (2018) find that mailing households targeted information about tuition-free scholarship eligibility at the University of Michigan significantly increases applications and attendance. However, Bergman, Denning, and Manoli (2019) find that emailing students about their eligibility for student aid has no effect on student behavior and Huntington-Klein and Gill (2019) find that nudges to increase college credit enrollments have no effect on student behavior. Bird et al. (2019) find that national and statewide messaging campaigns to increase FAFSA completion had no effect on college enrollment or persistence. Similar to many of these interventions, we find no overall effect of information-only or active-choice framed messages on parents' PGIB transfer decisions. However, because we observe individuals' unique

login-credentials, we are able to provide a more complete picture of how individuals respond to different types of messaging and how these responses correlate with treatment effects.

The rest of the paper proceeds as follows. We describe our setting in Section II and our sample and data in Section III. Section IV details our empirical strategy. We present results in Section V and conclude in Section VI.

II. The Post-9/11 GI Bill

The Post-9/11 GI Bill (PGIB), signed into United States law under the Veterans Educational Assistance Act of 2008, provides generous education benefits to American military service members and their families. The PGIB marks a significant update to a longstanding federal government program whose charter legislation provided education and/or job training benefits taken up by more than 8 million returning World War II Veterans. Under the current version of the bill (the PGIB), the baseline benefit for service members includes 36 months paid in-state tuition and fees at any public institution (or up to $23,672 for annual tuition and fees at private or out-of-state public institutions) in addition to a locality-adjusted monthly housing allowance and stipend for books and supplies.[7] In higher-cost states, the total value of the PGIB benefit can exceed $200,000.[8] The PGIB additionally authorizes active-duty service members with six or more years of service the option to transfer educational benefits to a spouse or child in exchange

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[7] Source: https://www.benefits.va.gov/GIBILL/resources/benefits_resources/rates/ch33/ch33rates080118.asp accessed 5/22/2019. In-state tuition applies to dependents who are (1) a resident of the state of the institution or (2) live in the state and have received the transfer benefits from a service member or veteran who is currently on active duty or has been discharged from service for fewer than three years. Many private and public institutions participate in the Yellow Ribbon Program and contribute additional amounts to GI-Bill recipients when private or out-of-state tuition exceeds the maximum threshold (https://www.benefits.va.gov/gibill/post911_residentraterequirements.asp accessed 5/22/2019).

[8] For instance, in New York City in 2019, the housing rate is $3366 per month. Assuming 4 years of tuition and fees at the maximum rate ($23,672), 36 months of housing allowance, and 4 annual stipends of $1000 each for books and supplies, the total value is $219,864.

for an additional four-years of active duty service. After transfer, the service member can change

the recipients and benefit allocation (to include using some or all of the benefit himself).[9]

Numerous researchers have studied the GI Bill and its impact on educational attainment

and Veterans' welfare. For instance, Bound and Turner (2002) and Angrist and Chen (2011) found

positive effects on college enrollment and attainment for Veterans. Barr (2015, 2019) examines

the increased generosity of the PGIB and finds that the higher levels of benefit increased college

enrollment of Veterans by as much as a 20 percent and degree attainment by 25 percent.

Castleman, Murphy, and Skimmyhorn (2019) study the transfer provision of the PGIB as

a multi-period, intra-household dilemma in which the service member parent weighs the benefit

of providing for a child's college education against the costs of foregoing that parent's own use of

the GI Bill and continued military service.[10]   Their descriptive analysis reveals clear

socioeconomic differences in transfer patterns: utilization rates are lowest among less-educated,

lower-wage junior soldiers. They also find that more than 3 in 5 Veterans who leave active duty

without transferring benefits do not use their GI Bill education benefits within 5 years of leaving

the military – suggesting benefits left on the table.[11]

Researchers in other settings have noted that a lack of visibility of opportunities likely

constrains participation both in higher education (Castleman, 2015; Hoxby and Turner, 2015) and

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[9] Spouses are eligible to use benefit immediately after transfer. Children are eligible to use the benefit after a parent has served 10 years in the Army and before the age of 26.

[10] In a non-peer reviewed technical report, Wenger et al. (2017) review and analyze the effects of some military education benefits (including the Post-9/11 GI Bill) on recruiting and retention. The report attributes a small positive retention effect to the transfer provision. In unpublished analyses, Castleman, Murphy, and Skimmyhorn (2019) find that differential pre-trends between service members eligible to transfer and those not eligible to transfer make causal inference of transfer benefits on retention problematic.

[11] The non-transfer, non-use subpopulation is a group of transfer-eligible service members at policy implementation who later separated without transferring benefits; on average, they were 37.6 years old at separation and had 2.4 kids. The measure of PGIB use is whether the Veteran used 12+ months of benefit within the first five years after separation. If we relax the 12+ month criterion and measure any use of PGIB (1+ months), that use rate jumps to 56% from 38% in the initial calculation. See Castleman, Murphy, and Skimmyhorn (2019) for more details.

in social benefits programs (Bhargava and Manoli, 2015). Similarly, other studies have shown that the very individuals who might benefit most from a program are the least likely to participate (Bertrand, Mullainathan, and Shafir, 2004; Currie, 2006). In the current setting, it could be that some service members might not appreciate the benefits (and costs) of college and so might not be making optimal intergenerational decisions. Moreover, perhaps the most junior and lowest-educated service members – who transfer benefits at the lowest rates – are disproportionately affected by informational barriers and some might not even know about the option to transfer benefits. The existing economic literature, combined with the difference in transfer behavior by socioeconomic status plus the low utilization of the PGIB by individuals who could have transferred benefits but did not, motivated our study. We hypothesize that the delivery of information on the PGIB, along with appropriate decision framing and reminders, will prompt parents to make active decisions about using their generous education benefits.

III. Study Design

A. Population and Data

Our study population consists of 97,213 Army service members, including both officers and enlisted soldiers. Each individual in the study was eligible to transfer PGIB benefits (currently on active duty, at least 6 years of military service, had a dependent family eligible to receive benefits transfer) but had not yet done so as of May 2018.

We observe monthly administrative data that include military rank, time in service, and AFQT (for enlisted soldiers only), as well as standard demographic characteristics such as gender, race, age, and education level from administrative military personnel records.[12] Additionally, we

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[12] All data for the study were compiled, merged, and de-identified by the U.S. Army Office of Economic and Manpower Analysis (OEMA). AFQT is the Armed Forces Qualification Test, a measure of aptitude.

observe the service member's family structure based on information compiled on military families in the Defense Enrollment Eligibility Reporting System (DEERS). The DEERS data are annual snapshots and include the date of marriage to a spouse and number of children by age range.

We also observe individual-level data that detail how individuals interacted with (i.e., click through) the elements of the intervention – both the email message and the associated website (we provide more on the layouts of each in the next section). For email engagement, we record which button an individual clicks in order to progress to the website. Once an individual reaches the website, we observe the buttons and/or links that they click and whether they pursue information related to either GI Bill own use or transfer.

Finally, the primary outcome measure in our study is a binary variable indicating transfer of any (i.e., at least one month) education benefits to a family member.[13] We observe individual transfer behavior – including the date of benefits transfer – from data provided by the Veteran's Administration (VA). We use the VA transfer data both to confirm eligibility for the study (i.e., eligible for the benefits and have not yet transferred) and as a measure of response to treatment (i.e., whether transfer occurred at an outcome horizon of six months).

We are currently unable to estimate the impact of the treatments on service members' own use of the education benefits. From the time of the experiment it would take up to a decade to obtain these data: 3-5 years for soldiers to complete their military service obligations and leave the service and then another 3-5 years for those same individuals to use (or not use) the GI Bill as Veterans. Future analyses will evaluate education-related decisions using the VA data.

B. Treatments

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[13] As noted in Castleman, Murphy, and Skimmyhorn (2019), many service members transfer only one month of benefits to one recipient, knowing that they can re-allocate the full 36 months at a later date. The observed data therefore reflect a lower bound of the amount of benefits transferred. As a result, we focus on the extensive margin of transfer (initial transfer of any benefit) rather than the intensive margin (how much was transferred and to whom).

Using stratified randomization, we assign eligible individuals into one of four groups: 1) *control* (n=24,271); 2) *information only* (n=24,315); 3) *active choice framing* (n=24,290); and 4) *active choice + planning prompt* (n=24,337), and we observe administrative outcomes for them all.[14][15] We do not communicate with members of the control group.

Each service member in the *information only* treatment receives an email (Figure 1) informing him that he can use education benefits himself or transfer to a family member. The email header encourages the service member to avoid leaving the GI Bill benefit on the table and explicitly states a potential value of the GI Bill education funding from $200,000 - $300,000. The body of the email contains a list of next steps relevant to use of the GI Bill (whether for own use or transfer to a family member), including confirming eligibility, looking into schools that may be a good fit, and step-by-step instructions on how to transfer benefits. However, as an important point of contrast against other email treatments, the next steps presented in the *information only* email are lumped together in a single list; there is no attempt to distinguish between action sequences for GI Bill own use versus transfer to a family member. Finally, at the bottom of this email communication, there is a button to click for more information. This button leads to a customized program website that we created to provide information relevant to use of the PGIB.

In the *active choice framing* treatment, the email clearly frames GI Bill education benefits use as a choice between own use and transfer, as shown in Figure 2. While the header content here is the same as in the *information only* treatment, the body of the email presents two separate lists of next steps; each list is purposely tailored to one choice (own use of benefits) or the other (transfer to a family member) and contains a separate button to click for more information. Importantly,

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[14] We stratify on sex, race, Armed Forces Qualifying Test (AFQT) categories, college attendance, and marital status.
[15] We do not observe click data for 132 individuals, so the sub-sample sizes for analysis of engagement are 24,287 (information only), 24,256 (active choice framing), and 24,302 (active choice + planning prompt).

the two lists reside in columns side-by-side in the email, separated by the word "OR" – the visual effect of this design is to impose an active choice architecture in which the service member is prompted to pick option A or option B in order to access additional program information.[16]

Individuals in the *active choice + planning prompt* treatment receive the same active choice framing just described, but additionally receive in the email a planning prompt to assist in the commitment to making a decision. See Figure A1 in the appendix for a visual depiction of this third treatment type. The inclusion of an interactive planning prompt allows the service member to commit to taking action today, in one week, or in two weeks. If an individual clicks "today," he is immediately redirected to the information website. If he clicks the button for one week or two weeks later, he receives a reminder email in that respective timeframe.

The buttons in each of the treatment emails lead to a program website with information relevant to use of the PGIB (see Figure A2 for visual depictions of the website landing page and subsequent content). The website allows the user to investigate separately whether to use the GI Bill benefits or to transfer them. Once the individual makes a choice, he progresses to a new screen with specific information links for either own use or benefits transfer. These pages each contain three distinct buttons to click for actual information (e.g., looking into eligibility or step-by-step transfer instructions). We observe interaction with these buttons in the click data and record an "info click" when an individual clicks one of these buttons to pursue more information. We also tally each individual's total number of clicks made between the email treatment and the website.

IV. Empirical Strategy

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[16] The bottom of the active choice framing email also contains a third click button for pursuing more information; similar to the click button in the information only email.

To assess the impacts of the intervention on engagement and transfer decisions, we estimate the following intent-to-treat models using ordinary least squares (OLS):

$$y_i = \beta_1 Framing_i + \beta_2 FramingPlanning_i + \gamma X_i + \varepsilon_i \tag{1}$$

$$y_i = \beta_1 Info + \beta_2 Framing_i + \beta_3 FramingPlanning_i + \gamma X_i + \varepsilon_i \tag{2}$$

We use equation (1) to measure how *active choice framing* and *framing +planning prompts* affect engagement relative to the *information only* treatment and use equation (2) to measure the effects of each treatment on PGIB transfer decisions. y_i is an outcome variable indicating either engagement with the intervention materials (i.e., from the click data) or GI Bill transfer; $Info_i$, $Framing_i$, $FramingPlanning_i$ are indicators for treatment group assignment. X_i is a vector of individual characteristics (such as civilian education level, military personnel type, race, and family structure) measured prior to the experiment launch, and ε_i is the disturbance term.

Identification of a causal treatment effect requires valid random assignment, which we document in Table 1. We observe small differences in the group means of 15 pre-treatment characteristics across our three different treatment conditions and control group. For each characteristic, we conduct an F-test of the equality of 4 group means and fail to find any statistically significant differences. This provides strong evidence that our random assignment was successful.

V. Results

A. Engagement with the Intervention

We first investigate the impact of the different treatments on service member engagement with the intervention. Specifically, we measure the extent to which the different email designs prompted individuals to click through to the website for information on the GI Bill. We estimate equation (1) with measures of engagement for the subpopulation of individuals assigned to any of

the three treatments and not the control group (we do not observe click behavior for this group since they received no communication from us). For this analysis, in which the sample size is n=72,844, we compare individuals who received an *active choice framing* or *active choice + planning prompt* email treatment against those who received the *information only* email treatment.

While we observe low overall rates of engagement with the intervention, we find that active choice framing consistently increases engagement by about 60% over the other treatments. The inclusion of a planning prompt does not increase the efficacy of the active choice framing effect. All of our estimates in this section are highly statistically significant ($p<0.01$); results appear in Table 2. For instance, for any email click (the simplest measure of engagement), the *information only* mean is 1.8%, indicating that about 1 in 50 individuals click through the email to get to the website. For *active choice framing* and *active choice + planning prompt*, those same rates are 3.0% and 2.8%, respectively, indicating that active choice framing increased engagement by 61% relative to the information only baseline. Similarly, for the any website click outcome, the information only baseline is 1.6% while the boost from active choice framing is 1.2%, a 75% increase. When we make the same comparison for the any information click outcome, the active choice premium is 0.8% on top of an information only baseline of 1.5%, an increase of 53%. Finally, the same magnitude increase applies to the total number of clicks outcome; active choice leads to 0.058 more clicks per person on a baseline of 0.093 clicks, indicating a 62% increase.

In Figure 3, we further explore individual click behavior based on the type of treatment email received. Not only are individuals more likely to engage with the active choice framing email than the baseline information only format (as just discussed), the topography of that engagement presents a noteworthy finding. In the information only format (left side of Figure 3), the email features a single choice-neutral click button at the bottom of the message. That button

has a 1.8% engagement rate (e.g., 18 clicks per 1000 emails sent), as reported in the first row of Table 2. For the active choice format (right side of Figure 3), that same choice-neutral button at message bottom receives 6 clicks per 1000 emails – 12 fewer than for information only. However, the choice-specific click buttons in the active choice section receive 23 total clicks between the information buttons for own use and information for transfer. Altogether, the active choice message receives 29 clicks per 1000 emails, significantly more than what is generated by the information only email (as shown by the regression coefficients in rows 2 and 3 of Table 2). These results speak directly to the impact of active choice framing communication in prompting individuals to seek out relevant information for decision-making.

B. Benefits Transfer - Full Sample

In order to investigate the impact of our behaviorally-informed information intervention on the primary program outcome, we estimate equation (2) for the full experimental sample on the outcome of any GI Bill transfer and provide results in Table 3.[17] We find no overall effects on the transfer outcome for each of our three treatments. As expected, the null finding is robust to the inclusion of control variables for demographics, family composition, military career, and civilian education, which we add sequentially in columns 2, 3, and 4. The point estimates for treatment are precise and we are able to rule out treatments effects smaller than -0.4 percentage points (pp) and larger than 0.6pp (0.05 significance level) on a control mean of 5.9 percent.

The lack of effect on GI Bill benefits transfer is a key finding of this paper. One possible explanation for the null effect could be the low overall engagement with the light-touch intervention, similar to results in Castleman, Patterson, and Skimmyhorn (2019). Even though individuals who received an active choice-informed email were more likely to click through to the

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[17] Specifically, this is an indicator from VA data for any transfer of benefits to a family member in the six months after experiment launch (i.e. – June 2018-December 2018).

website, that rate of engagement (around 3%) is still low in absolute terms.[18] Another possible explanation is the general complexity of the decision for how to use PGIB benefits: the service member must compare potential education and earnings trajectories across generations while considering his own willingness to accept an additional active duty military commitment (in the case of a benefits transfer). Perhaps a light-touch email intervention is insufficient in helping individuals to resolve this multifaceted dilemma – we expand on this point in Section VI.

C. Benefits Transfer - Heterogeneity

Numerous researchers have found that the response to behavioral interventions can vary by the characteristics and backgrounds of the treated individuals (Alcott, 2011; Castleman, Page, and Schooley, 2014; Castleman and Page, 2017; ideas42, 2016). We test for heterogeneous response to treatment by estimating equation (2) for different subgroups within our experimental sample. Our outcome of interest remains any transfer of PGIB benefits. We see little heterogeneity for individuals with differing family compositions (i.e. – with or without children) or military careers (i.e. – enlisted vs. officer; military tenure); these results appear in Table A1.

However, we observe a notable difference in treatment effects by education level in Table 4. Whereas treatment effects are negligible for individuals with a college degree or less education, results are positive and statistically significant for those with a graduate degree (n=9,330). In this subgroup, the control mean transfer rate is 0.091. For those assigned to any treatment category, the transfer rate is 0.110 – which marks a 21% increase over the comparison group (p<0.01).[19]

One possible explanation for the behavior of this high-SES group is that they are naturally more responsive to email-based communication, perhaps based on the nature of daily work tasks in the Army or from prior experiences as both undergraduate and graduate students. In a similar

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[18] Email read receipt data is unavailable for the experiment, so we cannot assess the most basic level of engagement.
[19] Baseline equivalence holds for the graduate-educated subpopulation – see Appendix A3.

vein, these individuals could also be more comfortable with college planning processes in the family context, given personal familiarity with higher education. Another important consideration for this graduate-educated subgroup is that they are far less likely to make own use of the GI Bill, as noted in Castleman, Murphy, and Skimmyhorn (2019), meaning that transfer could be more likely and that the missing data problem (i.e. – not observing own use or non-use) is less relevant for these individuals. A comparison of engagement with the intervention materials by education level offers empirical support for a combination of the first two hypotheses (greater responsiveness to email communication, more familiarity with college planning), as shown in Table 5. Namely, in the *information only* treatment group alone, individuals with a graduate degree are more than three times as likely to click through the email to get to the website than are those with just a high school education (0.039 versus 0.012). This result is likely due to some combination of greater responsiveness to email and general familiarity with college planning; we are unable to differentiate between these mechanisms. However, it is impractical to rule out the third hypothesis (less need for own use for the benefit given education already complete) because transferring benefits to a family member may be more salient when the service member has already completed his education. Looking beyond the information-only subgroup comparison, the use of active choice framing increases engagement for each education-level subgroup, as depicted in column 4 of Table 5, but the baseline engagement gap remains – indicating that this framing-based, email intervention was indeed most impactful for the higher-SES subpopulation.

VI. Discussion

In this paper, we report on a large-scale experiment that tests whether active choice framing impacts individual behavior in decision-making for transfer or takeup of the Post-9/11 GI Bill

(PGIB), which is a high-stakes, intergenerational education benefit available to military service members and their families. Following Castleman, Murphy, and Skimmyhorn (2019), who found clear SES differences in use of the PGIB transfer provision and that many soldiers who do not transfer benefits do not subsequently make own use of the benefits as Veterans, we sought to determine whether behaviorally-informed techniques could influence decision processes and improve outcomes for service members and their families.

We find that individuals who received an email framing GI Bill use as an active choice between own use and transfer to a family member are far more likely to pursue information about the benefit than are individuals who received an "information only" communication. Specifically, active choice framing increases engagement with information by 60%; this result holds across a variety of engagement measures. This finding reinforces other research on active choice framing, particularly in Putnam-Farr and Riis (2016), who found that framing a decision as a Yes/No led to greater engagement with that decision. This type of framing could be valuable for other important decisions that individuals face in the Army (or in other environments as well), such as for retirement planning, continuing education participation, and takeup of consumer debt protection.

We find no overall effect of active choice framing on transfer behavior, although active choice framing does increase transfer behavior among service members with graduate degrees. Our results thus build on more recent work demonstrating that interventions which aim to level the playing field in access to public benefits can instead disproportionately benefit more advantaged populations. For instance, Smith and Hurwitz (2018) demonstrated that increased test score sends for college applications as a result of College Scorecard data were driven exclusively by well-resourced families and high schools. Additionally, research by Carrell, Sacerdote, and West (2013) and Damgaard and Gravert (2018) analyzes experiments that induced unintended

(opposite) effects in the contexts of military academy peer group composition and charitable giving, respectively.

Finally, we add to the growing body of evidence that shows limited or no effect of light-touch nudges at scale for low-SES populations with complex decisions like human capital investments (Bettinger et al., 2012; Bird et al., 2019; Bergman, Denning, and Manoli, 2019; Huntington-Klein and Gill, 2019; Oreopoulos et al., 2018). This result suggests the need for more intensive intervention to support active decision-making among low-SES individuals, which other studies have demonstrated can lead to substantial improvements in educational investments and outcomes for low-SES populations (e.g. Bettinger et al., 2012). Accordingly, future research could explore the efficacy of such intensive interventions, like counseling or hands-on-assistance, on improving decision processes and outcomes for low-SES individuals facing high stakes decisions.

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Figure 1: Information Only Email Treatment

Your service to our country has earned you up to $200,000 - $300,000 in GI Bill education funding. Sadly, a recent study found that *more than 50% of veterans don't use the GI Bill benefits* that they worked so hard to earn.

Consider your your options:

You may choose to use your education benefits to pay for your college after you get out of the Army or you may transfer your education benefits to a family member to pay for their college education.

Next steps:
• Look into GI Bill eligibility for yourself
• Explore schools that are a good fit for you
• Meet with an Education counselor at your base to explore how to use the GI Bill
• Look into transfer eligibility for your dependents
• Get step-by-step guidance on how to transfer your benefits
• Meet with an Education counselor at your base to discuss how your dependents can use GI Bill benefits

CLICK BELOW FOR MORE INFORMATION

LEARN MORE ABOUT MY GI BILL OPTIONS

Sincerely,

Office of the Assistant Secretary of the Army
(Manpower and Reserve Affairs)
111 Army Pentagon
Washington, DC 20310-0111

Figure 2: Active Choice Framing Email Treatment

Figure 3: Comparison of Click Behavior by Treatment Email Type
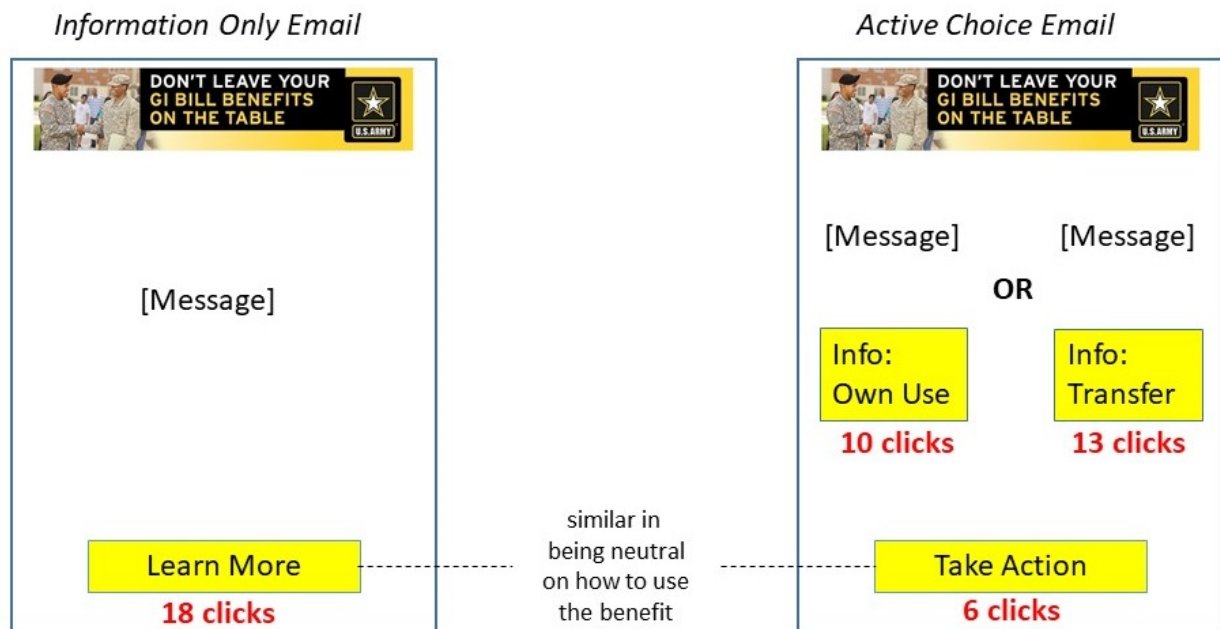
Notes: Diagram presents a simplified depiction of the treatment emails that appear in Figures 1 and 2. Click buttons are shaded in yellow. Clicks are per 1000 individuals receiving that email type. The active choice email click statistics (right side) are an average of results from active choice framing treatment and active choice + planning prompt treatments.

Table 1: Baseline Equivalence

	Control	Info Only	Active Choice	Active Choice + Planning	F test p-value
Female	13.1%	13.1%	13.0%	13.1%	0.996
Black	20.9%	21.0%	20.9%	21.0%	0.991
Hispanic	13.6%	13.6%	13.6%	13.5%	0.996
Other Race	8.0%	8.0%	8.0%	8.0%	0.999
Age	34.33	34.27	34.30	34.26	0.554
Has Children	77.1%	77.4%	76.9%	76.8%	0.334
Has HS-Aged Child	14.5%	13.9%	14.2%	13.9%	0.139
Officer	18.6%	18.6%	18.8%	18.4%	0.760
10-14 Years of Service	30.6%	30.5%	30.2%	30.8%	0.572
15+ Years of Service	22.4%	22.0%	22.4%	22.0%	0.531
AFQT	58.4	58.4	58.4	58.4	0.989
Graduate Degree	9.6%	9.7%	9.6%	9.5%	0.942
College Degree	17.0%	17.1%	17.3%	17.2%	0.890
Some College	25.9%	25.8%	25.7%	25.9%	0.947
High School Graduate	42.9%	42.9%	42.8%	43.0%	0.984
N	24,271	24,315	24,290	24,337	

Note: The reported p-values are from an F test for equality of 4 group means, assuming homogeneity. The test for the AFQT (Armed Forces Qualification Test) covariate is for a subset of 74,731 individuals – all of whom are enlisted service members – since the Army does not collect AFQT for commissioned officers. All other covariate tests are for the entire experimental sample (n=97,213).

Table 2: Engagement with the Intervention

	Any Email Click	Any Website Click	Any Info Click	Total # of Clicks
(1) Information Only *<mean value>*	0.0181	0.0160	0.0150	0.0930
(2) Active Choice *<treatment effect>*	0.0119*** (0.0014)	0.0125*** (0.0013)	0.0084*** (0.0012)	0.0634*** (0.0082)
(3) Active Choice + Planning Prompt *<treatment effect>*	0.0103*** (0.0014)	0.0113*** (0.0013)	0.0074*** (0.0012)	0.0523*** (0.0080)
n	72,844	72,844	72,844	72,844
Tests of Differential Effects				
p-value 1 = 2	0.000	0.000	0.000	0.000
p-value 1 = 3	0.000	0.000	0.000	0.000
p-value 2 = 3	0.297	0.433	0.459	0.219

Notes: The values presented in row 1 are means for the information only treatment group; values in rows 2 and 3 are partial effects for those treatments as compared to information only, along with standard errors in parentheses. Each column presents output from a separate OLS regression. Each regression includes demographic, military career, and education covariates. The outcomes represent increasing levels of engagement with the intervention, ranging from making any click on a button in the email (leftmost column) to clicking through the full website to information links and total number of clicks (rightmost row). We exclude individuals in the control group, since they received no communication from us.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 3: Treatment Effects on GI Bill Transfer – Full Sample

	(1)	(2)	(3)	(4)
Info Only	0.00002	0.0002	0.0002	0.0001
	(0.002)	(0.002)	(0.002)	(0.002)
Active Choice	0.0012	0.0012	0.0014	0.0014
	(0.002)	(0.002)	(0.002)	(0.002)
Active Choice +	0.0013	0.0015	0.0017	0.0016
Planning Prompt	(0.002)	(0.002)	(0.002)	(0.002)
Gender, race, age		X	X	X
Family composition			X	X
Mil career, own educ				X
Dependent variable control mean	0.059	0.059	0.059	0.059
R^2	0.000	0.005	0.010	0.017
Observations	97213	97213	97213	97213

Notes: Each column presents a separate OLS regression. The GI Bill Transfer outcome is a binary variable for making a transfer (of any amount of months) to a family member during the post-treatment period. Info Only, Active Choice, and Active Choice + Planning Prompt indicate assignment to that treatment. Family composition variables indicate whether the service member has any children and/or a high school - aged child. Military career covariates indicate whether the service member is a commissioned officer and tenure in the military. Own education is a set of indicator variables corresponding to the individual's highest level of civilian education. Standard errors in parentheses. All regressions include a constant.

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

Table 4: Treatment Response by Education Level for GI Bill Transfer Outcome

	Control Mean	Info Only	Active Choice	Active Choice + Planning	Any Treatment
All	0.059	0.0001	0.001	0.002	0.001
n=97,213		(0.002)	(0.002)	(0.002)	(0.002)
Subgroup					
Grad Degree	0.091	0.014	0.019**	0.025***	0.019***
n=9,330		(0.009)	(0.009)	(0.009)	(0.007)
College Degree	0.076	-0.003	-0.012	0.001	-0.004
n=16,676		(0.006)	(0.006)	(0.006)	(0.005)
Some College	0.073	-0.004	0.004	-0.002	-0.001
n=25,094		(0.005)	(0.005)	(0.005)	(0.004)
HS Grad	0.039	0.002	0.002	-0.001	0.001
n=41,721		(0.003)	(0.003)	(0.003)	(0.002)
Less than HS	0.042	-0.010	-0.005	0.005	-0.003
n=4,238		(0.008)	(0.008)	(0.009)	(0.007)

Notes: GI Bill Transfer outcome is a binary variable for making a transfer (of any amount of months) to a family member during the post-treatment period. Each row presents output from a separate OLS regression. Each regression includes demographic, military career, and education covariates. Standard errors in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: Engagement with the Intervention by Education Level

	Info Only Mean	Active Choice	Active Choice + Planning	Any Active Choice Treatment
All	0.018	0.012***	0.010***	0.011***
n=72,844		(0.001)	(0.001)	(0.001)
Subgroup				
Grad Degree	0.039	0.016***	0.009	0.013**
n=6,995		(0.006)	(0.006)	(.005)
College Degree	0.026	0.015***	0.011***	0.013***
n=12,541		(0.004)	(0.004)	(0.003)
Some College	0.016	0.012***	0.013***	0.013***
n=18,807		(0.003)	(0.003)	(0.002)
HS Grad	0.012	0.010***	0.009**	0.010***
n=31,309		(0.002)	(0.002)	(0.002)
Less than HS	0.012	0.007	0.012**	0.010**
n=4,238		(0.005)	(0.006)	(0.005)

Notes: Each row presents output from a separate OLS regression. Each regression includes demographic, military career, and education covariates. The outcome in every regression is an indicator variable for making any click on a button in the intervention email, which is our baseline measure for any engagement with the intervention. We exclude individuals in the control group, since they received no communication from us. Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure A1: Active Choice + Planning Prompt Email Treatment

DON'T LEAVE YOUR GI BILL BENEFITS ON THE TABLE

U.S.ARMY

Your service to our country has earned you up to $200,000 - $300,000 in GI Bill education funding. Sadly, a recent study found that *more than 50% of veterans don't use the GI Bill benefits* that they worked so hard to earn.

Because transferring your benefits would include a commitment to serve 4 additional years from the date of your request, *now is the time* to choose how will you use your GI Bill.

Today, I urge you to decide which group of veterans you will be in:

I want to use the education benefits to pay for my college education after I get out of the Army	OR	I will transfer the education benefits to a family member to pay for their college education

Learn more about this option:
• Look into GI Bill eligibility
• Explore schools that are a good fit
• Meet with an Education counselor at my base to explore how to use the GI Bill

Learn more about this option:
• Look into transfer eligibility
• Get step-by-step guidance on how to transfer
• Meet with an Education counselor at my base to discuss how my dependents can use GI Bill benefits

TAKE ACTION TO USE THE GI BILL MONEY I'VE EARNED
I will take action to claim the GI Bill benefits I have earned:

TODAY	11 JUNE 2018	20 JUNE 2018

Sincerely,

Office of the Assistant Secretary of the Army
(Manpower and Reserve Affairs)
111 Army Pentagon
Washington, DC 20310-0111

Figure A2: Post-9/11 GI Bill Information Website

A. Landing Page

B. Information for Own Use with Links

C. Information for Benefits Transfer with Links

Your service to our country has earned you up to $200,000 - $300,000 in GI Bill education funding. Sadly, a recent study found that *more than 50% of veterans don't use the GI Bill benefits* that they worked so hard to earn.

I will transfer the education benefits to a family member to pay for their college education

	Most servicemembers are eligible to transfer their benefits after 6 years of total service and a commitment to 4 additional years of active duty service	**LOOK INTO GI BILL ELIGIBILITY**
	Transferring benefits to a family member only takes a few minutes	**STEP-BY-STEP INSTRUCTIONS**
	Education counselors are available to meet with you and help with your GI Bill benefits	**CONTACT YOUR EDUCATION COUNSELOR**

Table A1: Heterogeneity in Transfer Outcome, by Family Structure and Military Career

	Control Mean	Info Only	Active Choice	Active Choice + Planning	Any Treatment
All	0.059	0.0001	0.001	0.002	0.001
n=97,213		(0.002)	(0.002)	(0.002)	(0.002)
Subgroup					
Has Children	0.067	0.001	0.003	0.001	0.002
n=74,913		(0.003)	(0.003)	(0.003)	(0.002)
Has HS-Aged Child	0.094	0.003	-0.002	-0.008	-0.002
n=13,722		(0.007)	(0.007)	(0.007)	(0.006)
Officer	0.080	0.007	0.001	0.017***	0.008*
n=18,093		(0.006)	(0.006)	(0.006)	(0.005)
Enlisted	0.054	-0.001	0.002	-0.002	-0.001
n=79,120		(0.002)	(0.002)	(0.002)	(0.002)
15+ YOS	0.085	-0.004	0.001	-0.005	-0.003
n=21,610		(0.005)	(0.005)	(0.005)	(0.004)
10-14 YOS	0.071	0.002	0.001	0.001	0.001
n=29,666		(0.004)	(0.004)	(0.004)	(0.003)
6-9 YOS	0.038	0.002	0.004	0.008***	0.004**
n=45,937		(0.003)	(0.003)	(0.003)	(0.002)

Notes: GI Bill Transfer outcome is a binary variable for making a transfer (of any amount of months) to a family member during the post-treatment period. Each row presents output from a separate OLS regression. Each regression includes demographic, military career, and education covariates. Standard errors in parentheses.

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

Table A2: Heterogeneity in Engagement with the Intervention, by Family Structure and Military Career

	Info Only Mean	Active Choice	Active Choice + Planning	Any Active Choice Treatment
All	0.018	0.012***	0.010***	0.011***
n=72,844		(0.001)	(0.001)	(0.001)
Subgroup				
Has Children	0.018	0.013***	0.011***	0.012***
n=56,123		(0.002)	(0.002)	(0.002)
Has HS-aged Child	0.018	0.012***	0.010***	0.011***
n=10,175		(0.004)	(0.004)	(0.003)
Officer	0.033	0.020***	0.011***	0.016***
n=13,569		(0.004)	(0.004)	(0.003)
Enlisted	0.015	0.010***	0.010***	0.010***
n=59,275		(0.001)	(0.001)	(0.001)
15+ YOS	0.024	0.014***	0.008**	0.011***
n=21,610		(0.003)	(0.003)	(0.002)
10-14 YOS	0.015	0.014***	0.012***	0.013***
n=22,208		(0.002)	(0.002)	(0.002)
6-9 YOS	0.017	0.010***	0.010***	0.010***
n=45,937		(0.002)	(0.002)	(0.002)

Notes: Each row presents output from a separate OLS regression. Each regression includes demographic, military career, and education covariates. The outcome in every regression is an indicator variable for making any click on a button in the intervention email, which is our baseline measure for any engagement with the intervention. We exclude individuals in the control group, since they received no communication from us. Standard errors in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table A3: Baseline Equivalence for Graduate-Educated Subpopulation

	Control	Info Only	Active Choice	Active Choice + Planning	F test p-value
Female	20.2%	19.8%	21.4%	21.4%	0.409
Black	15.3%	15.9%	16.0%	16.0%	0.908
Hispanic	7.1%	7.6%	7.2%	6.8%	0.747
Other Race	9.7%	9.4%	9.5%	9.6%	0.975
Age	39.8	39.7	39.7	39.8	0.803
Has Children	68.2%	68.1%	68.1%	68.1%	0.999
Has HS-Aged Child	13.8%	14.3%	14.2%	15.5%	0.387
Officer	87.2%	87.6%	87.0%	87.2%	0.938
10-14 Years of Service	33.1%	31.2%	31.5%	30.4%	0.249
15+ Years of Service	39.7%	38.8%	39.9%	40.7%	0.613
N	2,335	2,350	2,332	2,313	

Note: The reported p-values are from an F test for equality of 4 group means, assuming homogeneity. The graduate-educated subpopulation consists of N=9,330 service members.