



ACQUISITION RESEARCH PROGRAM SPONSORED REPORT SERIES

Did it Work? Analyzing the Effect of the Air Force's 2022 Decision to Unmask Advanced Academic Degree for Promotion to Major and Lieutenant Colonel on Degree-Seeking Behavior

March 2026

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Prepared for the Naval Postgraduate School, Monterey, CA 93943.

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ABSTRACT

In December of 2022, Secretary of the Air Force Frank Kendall announced that beginning in January of 2023, education information would be unmasked at promotion boards for promotion to major and lieutenant colonel, reversing the previous 2014 policy that hid this information. He cited the need for specific capabilities, developed through advanced education, that would be required as national strategic priorities shifted away from counter insurgency operations to great power competition. My thesis examined the effectiveness of the 2022 unmasking policy. Using data from 2018 to 2025 of individual officers between second lieutenant and major, I developed an ordinary least squares and linear probability model to examine the correlation between the 2022 unmasking policy and three degree-seeking behaviors for officers between the rank of second lieutenant and major. Specifically, I examined the effect the policy had on seeking a master's degree and conditional on earning a degree, the type of degree earned and the quality of the degree. I found that while the policy may not have been effective at getting more officers to earn a master's degree, it did push those who did seek them to get better quality degrees that were more in line with the Air Force strategy for great power competition.



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LIST OF ACRONYMS AND ABBREVIATIONS

ABM	Air Battle Manager
AFSC	Air Force Specialty Code
CNA	Center for Naval Analysis
CSO	Combat Systems Officer
DMA	Designated Market Area
DOPMA	Defense Officer Personnel Management Act
eOSR	electronic Officer Selection Record
HAF/A1XD	Human Resources Data Analytics and Decision Support Division
IPEDS	Integrated Postsecondary Educations Data System
JAG	Judge Advocate General
LSF	Line of the Space Force
NCES	National Center for Education Statistics
OSB	Officer Selection Brief
OTS	Officer Training School
ROTC	Reserve Officer Training Corps
RPA	Remotely Piloted Aircraft
TA	Tuition Assistance
USSF	United States Space Force



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I. INTRODUCTION

In December of 2022, Secretary of the Air Force Frank Kendall announced that beginning in January of 2023, promotion boards would once again be able to view education information for candidates that were up for promotion to major and lieutenant colonel. In his memo, he tied his decision to unmask this information to the shift in national strategic priorities away from counter insurgency operations to great power competition. “The United States, and specifically the Department of the Air Force, are facing foreign competitors that include the most technologically capable and well-resourced competitor we have ever confronted,” he wrote (Kendall, 2022, para. 2). He specifically named China and Russia as “potential threats,” that would require the Air Force to leverage “new technology more rapidly and effectively than our competitors,” and called on advanced education, such as master’s degree programs, as a way to instill airmen with “deep expertise in emerging technologies and their application to military operations,” (Kendall, 2022, para. 2, 3). The decision to unmask education is a continuation of a thirty-year history of implementing and reversing this decision but framing it in this light is unique as it is the first that so strongly tied the decision to the national security strategy. My thesis studies the effectiveness of this policy by examining changes in degree-seeking behavior of officers after the policy.

Education can have a large impact on the ability of a member to be promoted because of how the Air Force promotion system is built. The foundation of the system is Title 10 of U.S. Code, Title 37, and the 1980 Defense Officer Personnel Management Act (DOPMA). These laws created a closed labor market with a tournament style promotion system in which promotion to the next rank is the only way to increase wages. They gave each branch of the military autonomy to create their own promotion criteria. The ability to implement their own criteria is what gives the Air Force its ability to change policy on visibility of education at promotion boards.

The 2022 decision to unmask education, and thus make it visible, to promotion boards is not new thought for the Air Force. The first adjustment to the policy was in 1996, when the decision to mask education was made in order to “level the playing field,”



(“Policy Change Masks Degrees,” 1996, para. 4). In the thirty years since, the Air Force has made changes around this policy four times. When the Air Force masks education, the cited reason is generally to push back on the perception that a master’s degree is required in order to promote or that career timing plays a consequential role in an officer’s decision to seek additional education. The times that the Air Force has unmasked education, it is to allow promotion boards to see the full value of candidates, with the 2022 policy going further by aligning the decision with strategy.

Each time the Air Force has written a policy on the visibility of education, the decision to mask or unmask has been grounded in economic theory. The decisions that masked education align with signal theory, which says high performers do well at school, therefore it is less costly for them compared to low performers. Therefore, advanced education acts as a signal that an officer is a high performer; it does not develop any knowledge, skills, or abilities. The other view is education is an investment in human capital. This view is that education does instill an individual with new knowledge, skills, and abilities. The times that the Air Force has unmasked education, the rationale given is grounded in human capital theory. For this reason, I explore the literature on these two theories in Chapter III.

While advanced academic education has never been required for promotion, previous research confirms that those with it promote at a higher rate than those without (Albright, 2022). The 2022 policy defines specific outcomes that it is looking for officers to achieve through advanced education. By unmasking the highest degree earned, the field of study, and the institution, the Air Force made these traits factors in a promotion board’s decision-making process. Therefore, when deciding whether to promote a candidate, a promotion board can make decisions based not only on the level of degree, but what field the degree was in, and where it was earned.

My research examined if the 2022 unmasking policy to understand to what extent it is achieving its intended effect of developing officers by asking three research questions. First, what is the effect of the 2022 policy on an officer’s probability of seeking a master’s degree? Second, what effect did the policy have on the type of degree that an officer earned, conditional on earning a master’s degree? I measure the type of degree with a binary for if



a degree is in one of the top fifty fields of study. I make the assumption that these are degrees that the Air Force values. Third and finally, what effect did the policy have on the quality of master's degree earned, conditional on earning a master's degree. Since quality is subjective, I use the sector of education (public vs. nonprofit vs. for-profit) of the school as a proxy for quality as the literature suggests for-profit colleges are lower quality than public or private not-for-profit colleges. I explore the literature behind this assumption in Chapter III.

The existing literature reveals a strong theoretical and empirical base for my research that links education and career outcomes, such as promotion. The theory of human capital investment asserts that education is a way for workers to acquire new skills that increase productivity (Mincer, 1958). Signal theory posits that education is just a means for employees to signal their status as a high-productive worker to employers (Spence, 1978). More recent research has concluded that graduate education can function as both an investment in human capital and a signal (Pericles Rospigliosi et al., 2014). The literature does suggest that officers respond to promotion incentives. Albright (2022) found that when education was unmasked from 2008 to 2014 at promotion boards, officers with a master's degree had a 14 percentage point premium. Chesney (2025) found that the number of officers who earned a master's degree by their eighth year in service declined when masking began again in 2014. He also found that officers sought degrees from for-profit institutions at much higher rates than they sought them from public or not-for-profit institutions, despite the literature viewing for-profit schools as being tied to worse labor market outcomes (Chesney, 2025; Deming et al., 2012, Turner, 2012). This likely reflects the outcome of marketing targeted at military members by for-profit institutions (Cellini & Chaudhary, 2020; Hanlon, 2022).

To conduct my analysis, I used an ordinary least squares (OLS) linear probability model (LPM). I used this model for its ease of use, though it has limitations like not being able to detect non-linearity. My model is also limited in not having a true control group that would allow me to create a counterfactual argument. I used a panel dataset provided Headquarters Air Force Human Resource Data, Analytics and Decision Support Division (HAF/A1XD). I turned this dataset into a cross-sectional data set for my analysis. I merged



it with data from the Integrated Postsecondary Education Data System to answer research question three.

The results of my thesis are mixed. Lieutenants after the 2022 unmasking policy were more likely to earn a master's degree than lieutenants before the policy by 3.3 percentage points. However, the trends in the raw data revealed that the probability of lieutenants earning a master's degree was on the rise in the years ahead of the policy, implying that there were other factors not accounted for that were motivating lieutenants to seek advanced academic degrees. The probability that a captain earned a master's degree was 6.6 percentage points lower after the unmasking policy. The results for majors were not statistically significant. Therefore, I fail to conclude that there is a correlation between the 2022 unmasking policy and earning a master's degree.

My results were more promising for the effect of the policy when I examined the type and quality of a master's degree, conditional on earning a master's degree. After the 2022 policy, the probability of earning a degree from one of the top fifty fields of study increased 5.4 percentage points for lieutenants, 2.5 percentage points for captains, and 6.8 percentage points for majors. There was also a strong, negative correlation between the unmasking policy and earning a degree from a for-profit institution for all three rank groups. After the 2022 unmasking policy, the probability that an individual officer earned a master's degree from a for-profit institution decreased 7 percentage points for lieutenants, 8.6 percentage points for captains, and 2.9 percentage points for majors. Together, these results could indicate that while the unmasking policy has not caused officers to go seek education, it has motivated those that have sought education to get better quality degrees that draw a connection to the Air Force's great power competition strategy.

In Chapter II, I go into detail on the background of the promotion system and the history of the masking policy. In Chapter III I explore the literature on signal theory and human capital investment, for-profit schools and how and why they attract military members, and previous Air Force research. Chapter IV is where I describe my data and how I took it from its raw form to its form as a cross-sectional dataset. I also further define my methodology. Chapter V is my results, and I close with Chapter VI where I summarize my conclusion and make recommendations for future research.



II. BACKGROUND

In this chapter, I provide the background information that underpins my research. I start by summarizing the Air Force promotion system by identifying the laws that are foundational to the system and from there to how the Air Force built its own promotion system. I describe how the Air Force groups career fields to develop officers and what promotion boards review. I then detail the different paths to advanced academic degrees available to officers and end by summarizing the history of masking policies in the Air Force.

A. AIR FORCE PROMOTIONS SUMMARY

The foundation of the Air Force promotion system is three blocks. First is Title 10 of U.S. Code which stipulates that officer's must be appointed by the President of the United States and that, with a few specific exceptions, all officers must enter the military in the grade of O-1 (second lieutenant). This establishes the military as a closed labor system in which new entrants must enter at the bottom of the organization and progress up. The Air Force cannot go to the civilian sector to hire someone into the grade of O-5. The second block is Title 37 of U.S. Code which establish that base pay will be the same across each pay grade. This incentivizes officers to promote as it is the only way to earn higher wages in the military. The last is that officers promote in a tournament system in which every eligible officer competes against each other for a limited number of positions at the next highest grade (Lazear & Rosen, 1981). The alternative would be to promote officers based on their output.

Air Force career fields are broadly grouped into three categories. The first are rated officers; pilots, remote pilots, combat systems officers, and air battle managers. Nonrated officers are all other officers that are not rated and are not in a field that requires additional professional education. Career fields that require additional professional degrees (such as JAGS, medical, or chaplains) make up the third broad category. These officers are often treated with separate policies due to the nature of their careers which require technical credentials to commission. For instance, these officers get a direct commission where they



enter the military at a grade higher than O-1. However, rated and nonrated officers are considered “Line of the Air Force” for promotions and development. At promotion boards before 2020, all Line of the Air Force officers compete against each other for the same number of promotions, meaning a finance officer would be competing at the same board against fighter pilots.

In 2019, the Air Force divided the Line of the Air Force promotion community into six groups (Losey, 2019a). The intent of this division was to have each subgroup promote against itself, so officers competed against and were evaluated by officers in more closely related career fields. The Deputy Chief of Staff for Manpower, Personnel, and Services at the time, Lt Gen Brian Kelly, noted that there were some factors out of an officer’s control that would penalize them at a promotion board. He cited command experience as an example, noting that not all career fields get the same opportunity to command (Losey, 2019b). The new development categories were intended to address some of these penalties.

Eligibility for promotion is largely determined by time in grade and service, in accordance with the 1980 Defense Officer Personnel Management Act (DOPMA), making it so that officers who commissioned in the same year compete against each other for promotion. Promotion to the next rank requires a board consideration starting when officers go up for the rank of major. The promotion board and what it sees becomes the driving force behind masking policies the Air Force has enacted.

Under DOPMA, each branch is able to dictate what information a promotion board considers. All the documents that a promotion board considers are placed in an electronic record of each individual officer meeting that promotion board, called the electronic Officer Selection Record (eOSR) (DAFI 36–2501, 2024). Inside the eOSR is the officer’s name, Air Force Specialty Code (AFSC), developmental category, grade and service data, commission source, the promotion recommendation form, professional military education, academic education, decorations that have been awarded, flying data for rated officers, board certifications for medical officers, if they are a member of the acquisition workforce, a wounded warrior, the joint reporting category, joint duty history, and foreign language skills, assignment history, a summary of any experience as a recruiter or instructor, and finally their annual evaluations (Department of the Air Force, 2025). The eOSR also



includes any adverse information on the officer such as nonjudicial punishments and court martial findings. It also allows officers to write a letter to the board explaining anomalies in their record. All of this is summarized on one page called the Officer Selection Brief (OSB) which is placed at the top of the eOSR. At various times, the Air Force has masked the developmental and academic education data so that promotion boards cannot see it (DAFI 36–2501, 2024). Changes in policy around masking education have occurred for over thirty years and is outlined in the next section.

B. ADVANCED ACADEMIC DEGREES

An advanced academic degree is any degree beyond a bachelor's degree. This includes not only master's and doctoral degrees, but also professional degrees. To support investing in their own human capital, the Air Force provides different pathways to help officers afford the cost of education. Tuition Assistance is available for any officer to use and functions as a subsidy. TA covers \$250 per credit hour, and an individual can receive up to \$4,500 per fiscal year. Officers incur a two-year service commitment for every course they use TA on, upon completion of the course. Service commitments obtained incurred from TA run concurrently with other service commitments.

In addition to TA, the Air Force also sponsors some officers to attend universities. This can be at military schools such as Air Force Institute of Technology or the Naval Postgraduate School but can also be at civilian sector schools. Officers must first apply for these programs and they are highly competitive. Lastly, members who attend their Intermediate Developmental Education (IDE) and Senior Developmental Education (SDE) in-residence are awarded a master's level degree upon completion. While every officer is considered for in-residence attendance, it is highly competitive to be selected. Like TA, command sponsor programs and in-residence IDE/SDE also accrue active duty service commitments.

Prior to 1996, advanced education was visible to all officer promotion boards. The Chief of Staff at the time, Gen. Ronal R. Fogleman, announced in January of 1996 that the Air Force would begin masking the education of promotion candidates for promotion to captain and major ("Policy Change Masks Degrees," 1996). It would still be visible for



promotion to lieutenant colonel and above. Gen. Fogleman sited this as a response to a quality-of-life survey from the year before which indicated that there was a perception among officers that education was a bigger factor than job performance for promotion (“Policy Change Masks Degrees,” 1996). The view was that this penalized officers in careers that do not have the same opportunity to seek education as early as others (“Policy Change Masks Degrees,” 1996).

In 2005, Chief of Staff Gen. John P. Jumper extended masking to promotion to O-5 and O-6 for all active duty Line of the Air Force officers. It extended to the Air Force Reserve and Air National Guard in 2006 (“Promotion Boards Will Not See Degree Info,” 2005). Gen. Jumper’s views were that officers were getting degrees to check a box, and that current policy was not motivating officers to seek degrees that directly related to their mission (“Promotion Boards Will Not see Degree Info,” 2005).

Gen. Jumper was succeeded by Gen. T. Michael Moseley in 2006. One of the first policy initiatives Gen. Moseley issued with Secretary of the Air Force (SECAF) Michael Wynne reversed the masking policy. They made an argument for human capital investment, arguing that the masking policy had caused too many airmen to not develop themselves through education and hid their true potential from promotion boards (Moseley & Wynne, 2006). In an effort to support airmen, they made the policy not effective until 2008, to give officers time to start and complete their degrees.

Secretary Wynne and Gen. Moseley’s policy remained in place until 2014, when the SECAF Deborah Lee James and CSAF Gen. Mark A. Welsh III once again masked advanced academic degrees at promotion boards for Lt Col and below. (United States Air Force, 2014). This decision to mask education was rooted in the perception that an officer could not promote unless they had earned an advanced academic degree, which created two problems that needed to be addressed. First, the perception took both promotion boards and individual officers’ focus away from job performance in their primary duties. The second problem that needed to be addressed was that this perception caused officers to seek advanced education at times that was not always the best for their family situation or where they were in their career. They argued that masking education would allow airmen to seek



higher education when it was “best suited for their life, career and family...” (United States Air Force, 2014, para. 7).

In 2022, Secretary of the Air Force Frank Kendall unmasked education again for promotion to major and lieutenant colonel beginning in 2023 (Kendall, 2022). In his message to the Total Force, he argues that advanced academic degrees develop critical thinking and expertise in emerging technologies and military application, which he frames as traits necessary for great power competition. Secretary Kendall’s policy made the field of study, where the education was earned, and when it was earned visible to promotion boards.

Each time the Air Force altered its policy on masking, the decision was rooted in signaling theory of education or education as an investment in human capital. In the next Chapter I examine the literature on both of these views, as well as empirical research on the effect of education on job outcome in the civilian sector and the military.



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III. LITERATURE REVIEW

The Air Force's policy around whether to unmask education places itself squarely in the center of the debate on whether education is a human capital investment or a signal to employers. From the Air Force's perspective, their policy memo makes it clear that an officer corps with a higher level of education will result in better outcomes, i.e., it is a human capital investment. From the perspective of the officers, this policy can be seen as making education a credential for promotion. I examine first the theoretical models that drive the debate, starting with the model that established the link between education and increased earnings and is the foundation of the human capital investment argument (Mincer, 1958). Then I look at models that demonstrate education as a credential or signal. Next, I look at empirical research, first looking at the quality of education provided by for-profit institutions before turning to how these institutions target military members for recruitment. Finally, I examine two recent studies by Air Force officers around education and promotion policy. The first investigates the promotion premium from education at O4 and O5 promotion boards. The second is similar to my research, looking at how changes to policy in 2008 and 2014 affected the decisions officers made about seeking graduate education.

A. THEORETICAL MODELS

Mincer's work is foundational to the theory of human capital investment because it assumes that education increases productivity (Mincer, 1958). He then builds a theoretical model that demonstrates that education is an investment and therefore individuals choose to get education when the net present value of their life-time earnings is greater than the cost of the education (Mincer, 1958). Costs in this case mean the cost of tuition and books as well as the lost wages that could have been earned if an individual chose to remain employed instead of going to school. People have different levels of education because their costs are not the same.

After establishing the framework, Mincer uses U.S. Census and the Federal Reserve Board's consumer survey data to test his theory (Mincer, 1958). He shows that the wage



differential between workers at the beginning of their careers and workers at their peak-earning age is greater with more education, meaning that more education is correlated with a higher ceiling for life-time earnings. His model also holds true when examining subgroups by occupation, industry, and race.

In contrast, Spence's (1978) research is foundational to signal theory which rose in direct opposition to human capital investment as an explanation for why an increase in education is correlated with increased earnings. In it, he creates a theoretical model of a lemon market with high and low productive workers that are indistinguishable from each other. In Spence's setup, high productivity workers will pursue education as a signal to employers that they are a high productivity worker. The critical assumption in the model is that the cost of education is negatively correlated with production, so that the cost is more expensive for a low productivity worker than a high productivity worker. Low productivity workers then choose not to take on the cost, and education becomes the signal. The Air Force's decision to unmask education at promotion boards leverages Spence's theory by giving high productivity officers a way to easily distinguish themselves.

Hwang (2016) builds on Spence's work by introducing a post-education period. He argues that the welfare benefit is not as great as Spence claimed because once individuals are selected by their education, they have less incentive to work hard. He called this separating equilibrium. Hwang expanded on this with a second theoretical model, called a pooling equilibrium. Pooling equilibrium includes a post-education period where individuals work hard at their jobs to improve their future career concerns. This post-education period changes the value of the education because individual performance also signals ability, incentivizing low-productivity workers to seek the same level of education so the post-education period performance is treated as the signal instead of the education. This makes it harder for the labor market to initially distinguish high productivity workers from low ones. Over time, workers' performance will be properly assessed, and the market will properly sort them (Hwang, 2016).

Pericles Rospigliosi et al. (2014) conducts a meta-analysis of the debate between signaling theory and human capital investment. They conclude that higher education functions as both an investment in human capital and as a signal. They leverage an



understanding of graduate employability to review the utility of higher education through the lens of different stakeholders.

They examine human capital investment to try to determine what skills or attributes employers are expecting to be gained by a graduate degree. In one instance, they look at a study that examined graduate job openings and found that among the 62 attributes employers ranked, the most important ones were soft-skills like cooperation, drive, and self-management, not firm-specific skills (Pericles Rosipigliosi et al., 2014). Additionally, they point to a study that demonstrated that most graduate vacancies are open to graduates of any subject. This does not work entirely against human capital investment because it could reflect an employer's openness to general skills as opposed to only wanting firm-specific skills, which are more costly.

In examining signal theory, they try to determine what it is that graduates are signaling and conclude that a willingness to learn is the desired outcome from graduate education. To do this, they first assert that the difference between graduate and non-graduate educated employees is that graduates have certain knowledge, skills and attitudes from their education and a proven willingness to learn. Then they examine empirical studies on these elements. When examining graduate knowledge, they determine that very few fields require up to date knowledge. They find that many of the skills that make successful students do not translate to successful employees and must be unlearned. When examining attitude, they find that universities seek individuals who question assumptions and that most employers are not interested in that trait (Pericles Rosipigliosi et al., 2014). They conclude that of these elements, employers are only interested in an employee's willingness to learn. Signaling theory is satisfied because graduate school signals to employers that an individual has a willingness to learn. Human capital theory is satisfied because it is learned in graduate school (Pericles Rospigliosi et al., 2014).

B. FOR-PROFIT EDUCATION QUALITY AND MARKETING

While empirical research has failed to prove one theory over the other, the increased attendance of Air Force personnel at for-profit schools that are perceived to offer a lower



quality education may run the risk of interfering with the Air Force's intent to grow its human capital.

With the growth of for-profit schools, scholars have tested the value of their signal. For example, Darolia et al. (2015) conducted an experiment in 2014–2015 in which they sent 9,000 fictitious resumes to employers with online job openings and tracked whether the firm tried to contact the individual listed on the resume and if the employer asked for an interview (Darolia et al., 2015). Resumes were randomized to list the post-secondary school as either from a for-profit or public community college in the metro area of the job. In each city that they conducted the experiment, they used 14 for-profit and public schools to maximize the chance of recognition by employers.

They found that a degree from a for-profit institution did not increase an applicant's chance of getting a response from an employer or an interview request compared to applicants with either community college or no college experience (2015). This suggests that for-profit education is not viewed as favorably in the labor market as public or private non-profit education, calling into question the high cost of the education. It is worth noting that this experiment is on subbaccalaureate education unlike my study on graduate level education. While assumptions can be made that this view would hold at the master's level, there is not much literature to prove the assumption. Additionally, since the applicants in this experiment are fictitious, it cannot provide insight on if for-profit schools have higher rates of employment, shorter periods of unemployment upon degree completion, or positive earnings differentials compared to public community colleges.

Despite the literature finding poorer outcomes associated with attending for-profit schools, the for-profit education represents the largest sector of education in the military (Chesney, 2025). While flexibility of for-profit education could explain part of this, for-profit schools also heavily market themselves towards military members to capitalize on laws around funding (Hanlon, 2022). For-profit schools are attracted to students with federal funding due to the reliability of the federal funds. However, Congress passed the 90/10 law in 1998 which prevents for-profit institutions from deriving more than 90% of their revenues from federal sources.



Crucially, Tuition Assistance is exempt from the 90/10 law. This incentivizes for-profit schools to target military members for recruitment (Hanlon, 2022). Cellini and Chaudhary (2020) used ad spending data from Kantar Media to investigate the differences in advertising spending across institutions by sector between 2013 and 2017. They use IPEDS to determine the sector of each school's advertising. Their study was unique because it was the first to investigate "how colleges use commercial spending to attract students (Cellini and Chaudhary, 2020)." They find college commercial ad spending is correlated with the demographic make-up of the metropolitan area. Compared to public schools, for-profit schools spend \$33,770 more in ads to target military members; \$27,560 more than non-profit schools (Cellini and Chaudhary, 2020). They showed that for-profit schools are greatly interested in recruiting military members, spending an additional \$54 in ads for a 1 percentage point increase in the share of military members in a Designated Market Area (DMA). This is the most of any demographic with the next highest amount spent being an additional \$1.63 for every 1 percentage point increase in black residents. They found for-profit school increased spending to attract students of different racial and economic backgrounds as compared to the nonprofit schools. This aggressive marketing could play a hand in why Chesney (2025) found 60% of officers getting their master's degree from a for-profit institution.

For-profit schools spend more to recruit military students because of TA's exemption from the 90/10 rule, and its high use by service members. According to a 2021 CNA report on voluntary military education programs, the Air Force has the second highest TA use rate of all branches and the highest completion rate. From FY99-FY15, 30% of Air Force TA users were officers. Additionally, the CNA report says that Air Force officers are 15 percentage points more likely to be super users than the Army. TA super users are members that use at least the median level credits or median level courses allowed by their branch in a year. The report argues that the Air Force's high TA use is in part due to enlisted promotion policy that requires an associate's degree to promote and officer promotions policy that has created a culture that highly incentivizes graduate level degrees, regardless of policy at any given time. TA policy does not allow for lateral degrees, or degrees that are at the highest level of education already attained by the user. Since officers must have



a bachelor's degree to commission, officers can only use TA on advanced academic degrees. Although their focus groups were under representative of officers, 83% of the Air Force officers O5 and below that participated had ever used TA. The report makes the case that Air Force promotion policies drive airmen to use TA at high rates. The volume of TA users paired with the 90/10 rule is what causes for-profit institutions to recruit so heavily from military members, and leads to so many Air Force officers pursuing degrees from for-profit schools despite the literature finding an association with less favorable labor market returns, such as employment rates, earnings, and student loan default rates (Deming et al., 2012; Turner, 2012).

C. PREVIOUS AIR FORCE RESEARCH

As laid out in the background, the Air Force has a history of changing the education information shown at a promotion board. Albright (2022) looks at the 2014 policy to mask degrees at O4 and O5 promotion boards, which stated its intent to do three things. The intent of the policy was to address the perception that advanced academic degrees were required to make major and lieutenant colonel, which would allow for officers to focus on job performance and let them choose to go to school when it is best for their personal situation (Secretary of the Air Force Public Affairs, 2014). Prior to that, education had been visible to promotion boards since 2008.

Albright built an event study to examine the effect of masking graduate degrees on promotion rates (2022). She used personnel data provided by the Human Resources Data Analytics and Decision Support Division (HAF/A1XD) at Headquarters Air Force, which contained every officer between 2007 and 2020. She determined promotion outcomes by comparing an officer's date of rank with pin-on charts provided by the Officer Promotion Branch at Air Force Personnel Center. She specifically looks at the promotion boards from 2008 to 2019. In that time, 48,060 officers were In the Promotion Zone for O4 and O5, of which 87.9% were male, 79.2% were white, and the average age was 34.97 years old. 47.3% were rated officers, and 75.7% possessed a master's degree or PhD.

Albright found that when education levels were unmasked, those with a graduate degree received a 14 percentage point premium on their O-4 promotion board compared to



their cohort (Albright, 2022). Albright's analysis of those meeting the O-5 board revealed a consistent premium that was relatively unchanged regardless of period. During unmasked periods, degree-holders promoted at about 75% while those without promoted at about 18%. The promotion rates were roughly 69% and 26% when masked (Albright, 2022).

Albright's results are clear that officers with a master's degree receive a premium at promotion boards, but it is unclear if that is because of the degree or the officer's individual productivity level. It is possible that the premium is because of human capital obtained by earning a master's degree. This could explain why the premium shrinks, but never disappears during the masked period. However, it is also possible that officers who earned a master's degree were higher productivity officers to begin with, and promotion boards were able to detect this when reviewing the member's record. Albright's study does not address this question.

Since the 2014 policy, there have been other policy changes that Albright (2022) was unable to examine. For example, she conducted her analysis comparing how graduate degrees affected promotion rates of officers in the rated (pilots) community with how it affected officers in the non-rated community. For the O-4 boards, rated officers experienced a smaller premium from an advanced academic degree, reflecting the lower importance that the rated community puts on education due to their internal training requirements and operational tempos as compared to the non-rated community. On average, 51.4% of rated officers do not have an advanced academic degree compared to the 28.1% non-rated officers that do not. The premiums are much more similar between the rated and non-rated community for the O-5 boards with roughly 10% of the rated community not having an advanced degree while roughly 5% of the non-rated community does not (Albright, 2022). However, in 2019 the Air Force changed its promotion policy by breaking down these communities into six categories and had them compete against themselves for promotion (Losey, 2019a., 2019b.).

Additional research has been done on the effect these masking policies have on education levels of Air Force officers. From 2008 until 2014 the Air Force unmasked education levels at promotion boards. Chesney (2025) examines the period from 2014 to 2020 and compares it to the period from 2008 until 2014. Chesney's research is highly



relevant to my own as it asks the same questions about policies that are in response to each other. Using the same data as Albright, back to 2000, he created an event study and difference in differences to examine how the policy changes affected the number of officers that earned a graduate degree, if officers started getting them earlier in their careers, and the relevance of the type of degree to represent the quality.

In addition to the Air Force personnel data, Chesney used Army Officer Administrative data from 2012–2020 as his control group.

In answering his first research question, Chesney found that when the Air Force decided to mask education in 2014, individuals experienced a 14 percentage point decrease in their likelihood of completing a master's degree (Chesney, 2025).

To see if the policy induces officers to seek degrees earlier, he examines the differential effect of the policy change on his treatment variable, the interaction of being in the Air Force after the policy (Chesney, 2025). He does this for all possible years of experience combinations between 2012 and 2020. What he finds is that the biggest response to the policy is from those at or close to 8 years of service, the time when an officer is meeting the O4 board. This also shows that those least responsive are those that are just entering the military and those nearing retirement (Chesney, 2025). This could be construed as supporting signaling theory, as individuals are most concerned about higher education near promotion gates.

To determine quality of education, Chesney started with the assumption that anyone who commissioned into the Air Force without a master's degree used their TA benefits to earn the degree. He then looked at the top eight most common schools for officers to use TA on for master's classes and categorized them as public, private nonprofit, and private for profit (Chesney, 2025). In this setup, and in-line with the literature, degrees from private for profit institutions are inferred to be of a lesser quality. He found that during the years that education was not masked (2008-2014), 60% of new degrees were from for-profit schools. He found that by 2020, the last year he reviewed and a year that education was masked, it was down to 40% (Chesney, 2025). This can imply a couple of things. The literature on signal theory says that this is because those officers who find school to be



more challenging dropped out since a promotion board would not see it. It can also be interpreted that officers who still pursued their degrees in the masked period viewed their education as a human capital investment. The decrease in the number of those seeking a graduate degree after the 2014 policy suggests that there were officers who sought a master's degree as a way to send a signal.

Chesney's other noteworthy finding was that he found no evidence that officers were punished by promotion boards for having a degree from a for-profit school. He also found no discernable improved outcome for degrees from elite institutions. The lack of a difference in treatment by the board suggests that the promotion boards may view higher education as a signal rather than an investment in human capital. This could be problematic if part of the motivation behind unmasking education is to push officers to increase their technical expertise and critical thinking.

My research builds upon the surrounding literature in the debate on signal theory or human capital investment. It will provide very specific insight that will advance the Air Force's understanding of how these schools of thought affect an officer's decision-making process when seeking graduate-level education.



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IV. DATA AND METHODOLOGY

In this Chapter I explain the data and methodology I used to study the relationship between the 2022 unmasking policy and key education outcomes. I begin with describing the data in its raw form. Then I describe how I cleaned the data to get it ready for analysis. After that I describe the dependent and independent variables that were used in my research. Then I summarize the data and test for significant differences in outcomes and independent variables before and after the policy. I close the chapter with a description of the methodology used for my analysis.

A. DATA

In this section, I describe the two datasets I used in their raw form and how I cleaned them to be ready for analysis. I start with the Air Force data, including analyzing trends in the raw data, then describe data from IPEDS.

1. Air Force Data

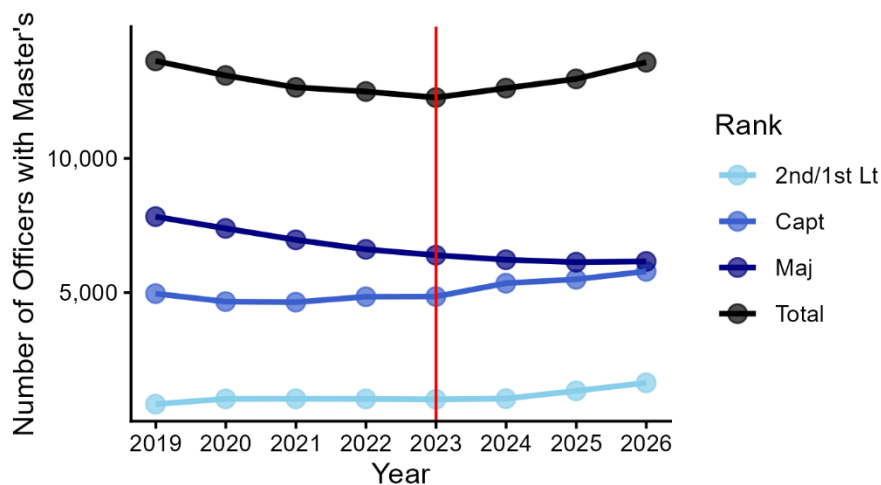
HAF/A1XD provided a panel data set of officers from 2018 to 2025. This raw data is 511,201 observations at the person*year level. One observation represents an individual officer on the last day of the year, if they had not separated or retired, reflecting career characteristics such as rank, Duty Air Force Specialty Code (AFSC), Core AFSC, competitive category for promotion, commissioning source, and time in service. It also contains demographic data such as sex, race, ethnicity, marital status, and the number of dependents that officer had on the last day of the year. Most importantly for my research, the data contains education levels for each officer, capturing their level of education, program of study, the institution that awarded the degree, and the year it was earned. Level of education captures what the most recent education achievement was for the officer as of the year of the observation. For example, a graduate of the Air Force Academy in 2018 would show their level of education as a bachelor's degree in 2018. If they earned a master's degree in 2020, then the level of education switched to reflect master's in the 2020 observation. Levels of education include associate through doctoral degrees and professional degrees. Since the policy targets officers below the rank O-5, I dropped all



observations where the rank was O-5 or above at any point between 2018 and 2025. This left 405,591 person*year observations.

Figure 1 and Figure 2 show trends in the raw data at the person*year level. Figure 1 shows the number of officers with a master's degree for each year in the data. This reveals that there was a downward trend in the total number of officers with a master's degree at the rank of major and below leading up to the policy going into effect. Once the policy goes into effect, the number starts increasing and by the end of the dataset is back to the 2018 level.

However, Figure 1 also reveals that there was a shift in the distribution of master's degrees between majors, captains, and first and second lieutenants. From the start of the data to the policy going into effect, there was a decline in the total number of majors with master's degrees. Captains stay relatively flat up to the policy. Once the policy went into effect the total number with master's degrees increases slightly. Lieutenants showed a consistent level up to and through the policy with an increase in the final two years of the data.



Note: Each point represents the total number of master's degrees on December 31st of each year.

Figure 1. Total Number of Officers with Master's Degrees



Figure 2 shows the share of officers with master's degrees in each year between 2018 and 2025. The total share is relatively unchanged throughout the data. Majors experienced a steady decrease through the years leading up to the policy, then began slowing down and leveling out by the end of the study. Captains experienced a decrease in the proportion of those who have a master's degree leading to the pandemic, then hold at that level until the policy. After the policy, that proportion starts climbing until by the end of the data, it is above the 2018 level. Lieutenants experienced the biggest shift with a continuous, gradual climb throughout the period. In the period after the policy, the proportion of lieutenants with a master's degree increased slightly more than it increased in the period before the policy.

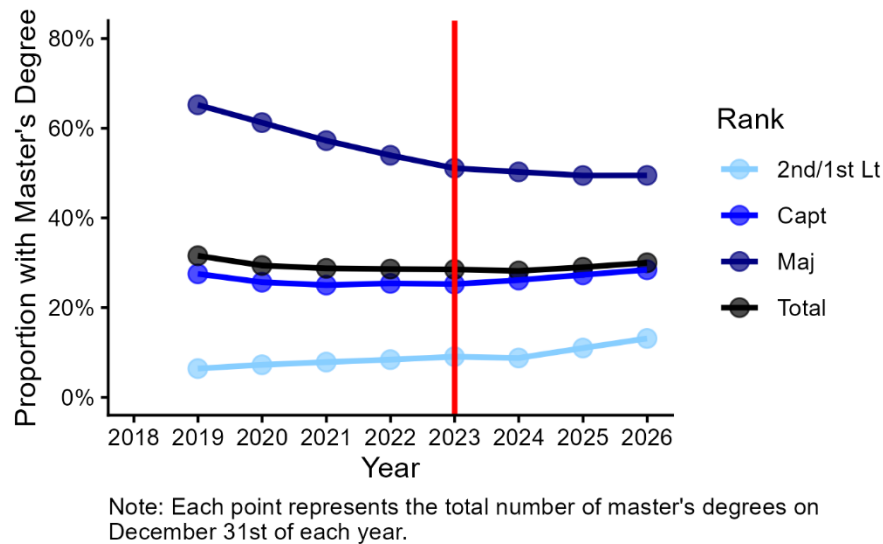


Figure 2. Proportion of Officers with a Master's Degree

The raw data shows that from 2018 through 2022, the total share of all lieutenants through majors with a master's degree remained constant. However, the total count of officers with a master's degree decreased, suggesting that the change in the share was due to a decrease in total number of officers. From 2023 to the end of the data, the share and count increased, suggesting that the sample grew during this period.

Examining the within-rank trends reveals more interesting information. For majors, the count of majors with a master's degree decreased throughout the entire period. The share decreased before the policy but was relatively constant after the policy. This suggests that the total number of majors could have remained constant before the policy but decreased after. This could mean that the change in the share of majors with master's degrees was in some part because of a change in behavior but after the policy it was because of a change in the sample size.

The count and share of captains was stable before the policy. After the policy, the count and share increased. This could be because more captains earned a master's degree or the total number of captains increased, or both.

Before the 2022 policy, the share of lieutenants with master's degrees increased. At the same time, the count held constant. This could mean that the total number of lieutenants decreased. This change in the sample could mean the share increased. However, after the policy, the share and count of lieutenants increased. This could mean that there was some change in behavior amongst lieutenants.

The U.S. Space Force (USSF) stood up on December 20th, 2019. While all airmen were given the opportunity to transition into the new force, some career fields were automatically transitioned. Since this occurred during the period of my study, I checked to see how my data was affected by examining the number of officers with a competitive category that reflected being a member of the Space Force, for instance, LSF-Operations (Line of the Space Force – Operations). In all, 4.42% of the person*year observations were guardians.

After checking the proportion of Space Force officers, I checked for the number of officers who had more than one master's degree by examining the number of distinct programs of study a member earned when master's degree was equal to one. I found 2,967 officers with multiple master's degrees. I dropped these observations since they are not the target of the policy, leaving only those officers with, at most, one master's degree.

I retained only the last observation of each officer, creating a cross-sectional dataset of 74,305 individual officers. One row contained the year of the observation, representing



the last time the officer was observed. If they separated or promoted to O-5 at some point between 2018 and 2025, then they were observed the year before. The year they were observed was 2025 for all officers who neither separated nor promoted. After the year ID, there were columns with a randomized individual identifier, their personal and professional demographic markers, the highest level of education achieved as of their last observation, the year they earned that degree, and the institution where they earned it.

When I converted the raw data to a cross-section dataset, I went from person*year observations to individual officers, losing the ability to see when officers promoted to the next rank. While I could see when a degree was earned, I could not see what rank an officer was when they earned it. For example, an officer that earned their bachelor's and commissioned in 2018 and never separated would have a year ID of 2025 and their rank as captain, but the year they earned their degree would reflect 2018 for when they earned their bachelors. I reconstructed this information by creating a new variable indicating the rank an officer was when they earned their degree. First, I determined when they joined by subtracting their time-in-service from the year they were last observed. Then I calculated how many years it took to get their degree by subtracting the year they joined from the year they earned their degree. If it was less than four years, I called the rank when they earned the degree "2nd/1st Lieutenant." If it was greater than or equal to four but less than nine, I called the rank when earned "Captain," and when it was greater than or equal to nine, I called it "Major." I chose these benchmarks based on when officers are promoted to captain and major.

Because my data covered the same time as the COVID-19 pandemic, I created a subset of data that omitted all education achievements from 2020. This dataset was 69,345 observations of individual officers between 2018 and 2025. My primary analysis omits officers who earned their degree in 2020.

In order to conduct analysis on the types of degrees officers sought, I created a subset of data that took the last observation of every officer and retained only those who had a master's degree. This dataset was 25,397 individual officers. I then categorized degrees as either being in the top fifty most common fields of study or not. 65% of officers



in the dataset had a degree from one of the top fifty fields of study. I categorized the top fifty fields of study as being a degree in STEM, business, military studies, or other.

The limitation of the Air Force data is that it does not have any way to evaluate the quality of degree. To do this, I merged information on the institution type from IPEDS.

2. IPEDS

Integrated Postsecondary Education Data System (IPEDS) is open-source data that is available through the National Center for Education Statistics (NCES). From IPEDS, I pulled information on postsecondary institutions, specifically what sector the institution belongs to. Sector is a variable that categorizes the school by two-year institutions that award associates degrees vs. four-year institutions that award at least a bachelor's, and whether it is a public, nonprofit, or for-profit institution.

I merged the IPEDS data into my dataset of officers with master's degrees. Institution names were not recorded the same way between the two datasets. After cleaning the data for capitalization and abbreviations, I pulled the individual institution names from each dataset, so each institution appeared once. Then I checked for instances where the institution name in the Air Force data matched the name in the IPEDS data. I found that that 14.2% of strings matched exactly. I matched that remaining institutions using a Jaro-Winkler similarity algorithm to match the names of institution between the two datasets.

I chose to use Jaro-Winkler because it calculates how two strings are similar based off the first letter, or prefix. Jaro-Winkler assigns a score between 0 and 1 for how similar the two strings are. A 0 means the two strings are an exact match, reflecting no distance between the two strings, while a score of 1 means that there is no similarity.

I set the max distance for my Jaro-Wrinkler to be 0.4, meaning any score of 0.4 or less would be recorded as a match. If any school in the Air Force data had several matches of 0.4 or less in the IPEDS data, I took the match with the lowest score. 75.8% of the schools that did not have an exact match got a fuzzy match. When I combined the exact matches with the fuzzy matches, 79.2% of the unique institutions matched.



I applied the combined list of exact and fuzzy matched schools back to the Air Force dataset and matched with 76.4% of the data. The mean distance for a match was 0.16995. To mitigate some of the risk from matching, I manually coded the sector for the top twenty-five most attended universities. After matching, I had a dataset of 25,397 individual officers.

B. VARIABLE DESCRIPTIONS

1. Dependent Variables

I measured the effect of the 2022 policy change on three outcomes: the probability of an officer earning a master's degree, the probability of getting a master's in one of the top fifty fields of study conditional on earning a master's degree, and the probability of getting a master's degree from a for-profit institution conditional on getting a master's degree. Table 1 provides a list of these dependent variables with their description for an individual officer. Masters is a binary variable that is equal to one when the highest level of education achieved for an officer between 2018 and 2025 was a master's degree. Top 50 Field of Study is a binary variable that is conditional on an officer having a master's degree. It is equal to one when the field of study is one of the fifty most common programs of study. For-Profit is also a binary variable that is conditional on an individual officer having earned a master's degree. It is equal to one when the institution the officer attended was a private, for-profit institution.

Table 1. Dependent Variables

Dependent Variables	Description
Masters	A binary variable equal to one when an officer's highest level of education was a master's degree between 2018 and 2025.
Top 50 Fields of Study	A binary variable equal to one when the field of study was one of the fifty most common fields officers earned their degree in
For-Profit	A binary variable equal to one when the institution the officer attended was in the private, for-profit sector.



2. Independent Variables

While my analysis uses a mix of demographic and career information, the main independent variable of interest is a post policy indicator. All the independent variables are listed fully in Table 2 along with their descriptions. I created an indicator for post 2022 to identify if the officer earned their current level of education after the policy went into effect on 1 January 2023. Male, white, and Hispanic are indicator variables which identify whether the officer is male, white, and of Hispanic ethnicity. Rated is a binary variable that is equal to one when the officer possessed a core AFSC indicating they were a pilot, remotely piloted aircraft pilot (RPA), combat systems officer (CSO), or air battle manager (ABM); otherwise, it was set to zero. Nonrated was a binary variable that indicated when the core AFSC of an officer was any line of the Air Force AFSC that was not part of the rated community. Med/Dental/JAG/Chap indicates when the core AFSC was part of the medical corps, medical service corps, nurse corps, dental corps, chaplain corps, or judge Advocate General (JAG). I grouped these career fields together because these fields require special credentials, unlike Line of the Air Force careers. Space careers is a binary variable that indicates if an officer belongs to one of the space related competitive categories. In 2019 these all became part of the Space Force. The final variable included was commissioning source which is a categorical variable reporting where the officer commissioned from. It includes not just Reserve Officer Training Corps (ROTC), the Air Force Academy, and Officer Training School (OTS) but sources such as the Health Professions Scholarship Program, direct appointment, or other service academies.

Table 2. Independent Variables

Independent Variable	Description
After 2022	A binary variable equal to one if the degree was earned after 2022, zero otherwise
Male	A binary variable equal to one for male officers, zero otherwise
White	A binary variable equal to one if the officer was white, zero otherwise
Hispanic	A binary variable equal to one if the officer was Hispanic or Latino, zero otherwise



Independent Variable	Description
Rated	A binary variable equal to one if the officer's Core ID indicated they were in one of the rated career fields (pilot, combat systems officer, remotely piloted aircraft pilot, or air battle manager), zero otherwise
Nonrated	A binary variable equal to one if an officer's Core ID was a nonrated career field, zero otherwise
Med/Dental/Jag/Chap	A binary variable equal to one if the officer's Core ID indicated Medical/Dental/Bio/Nurse/JAG/Chaplain, zero otherwise
Space Careers	A binary variable equal to one if the officer's competitive category indicated a Space career, zero otherwise

C. DESCRIPTIVE TABLES

I created descriptive tables to check how certain variables differed for officers whose highest level of education was earned before the 2022 policy vs. officer's whose degree was achieved after. Table 3 shows the means for key demographic and education variables. Males were a larger share of officers that earned degrees before 2022 at 76% compared to after 2022 at 70%. The share of white officers decreased from 76% who earned their master's degree before 2022 to 72% who earned it after. Hispanic officers actually made up a larger share after 2022 at 10.7% compared to 8.8% before. The share of officers that earned their master's degree was greater after the 2022 policy at 38.3% compared to 36.2% before the 2022 policy. For officers who got their master's degree, there was an increase in the share who earned it in one of the top fifty common fields of study after the 2022 policy, increasing from 48% to 56%.



Table 3. Balance Table of Education Achievements Before and After the Policy

Variable	Before Policy Effective	After Policy Effective	Difference	P-value
Male	0.757 (0.429)	0.702 (0.457)	-0.055	<0.001***
White	0.761 (0.427)	0.721 (0.448)	-0.039	<0.001***
Hispanic	0.088 (0.283)	0.107 (0.309)	0.019	<0.001***
Master's	0.362 (0.481)	0.383 (0.486)	0.021	<0.001***
Top 50 Fields of Study	0.479 (0.500)	0.557 (0.497)	0.078	<0.001***
STEM Degree	0.213 (0.410)	0.263 (0.440)	0.050	<0.001***
Business Degree	0.121 (0.326)	0.141 (0.348)	0.020	<0.001***
Military Studies	0.050 (0.219)	0.073 (0.261)	0.023	<0.001***
Other Top 50 Degree	0.094 (0.292)	0.080 (0.271)	-0.015	<0.001***
N (Observations)	55396	13949		

Note: Sample looks at all education achievements through doctorate degrees and compares those earned between 2018 and 2022 to those earned between 2023 and 2025. The sample excludes education achievements earned in 2020.

Among the fifty most common fields of study, I categorized the individual degrees into four categories, STEM, business degrees, military studies, and other. I did the categorization by giving the list of fifty fields of study to ChatGPT and prompting it to do the categorization. “Other Top 50 Degrees” were degrees in leadership, political science and international relations, criminal justice, public health, physician assistant, public health administration, and history. Table 4 shows that the distribution among the fifty most common fields also shifted after the policy. The share of officers who earned a master’s in STEM after the 2022 policy was 26%, up from 21% before. The share of business degrees also increased after the policy from 12% to 14%. Military studies had a larger share after the 2022 policy at 7%, up from 5% before. The remaining top fifty fields of study, classified as “other,” were earned by a smaller share of officers after the 2022 policy at 8%, down from 9% before. Though small, these differences were statistically significant.



Table 4 displays the distribution across periods for majors and captains only as they are most directly affected by the policy since they face promotion boards. Male captains and majors and white captains and majors made up a larger share of the sample before the 2022 policy. Males made up 80% of the sample before but dropped 5 percentage points after the policy to 75%. For white captains and majors the share decreased by 5 percentage points as well from 78% to 73%. Among these two rank groups, there was a decrease of four percentage points in the share that earned a master's degree after the 2022 policy. Given the steep decline in the number of majors with master's degrees shown in Figure 1, this result is expected. There was little effect on the types of degrees that captains and majors earned after the policy, with no statistically significant difference in the share of STEM or business degrees.

Table 4. Education Achievements for Captains and Majors

Variable	Before Policy Effective	After Policy Effective	Difference	P-value
Male	0.802 (0.398)	0.754 (0.431)	-0.049	<0.001***
White	0.776 (0.417)	0.731 (0.444)	-0.045	<0.001***
Hispanic	0.089 (0.285)	0.118 (0.323)	0.029	<0.001***
Master's	0.721 (0.449)	0.681 (0.466)	-0.040	<0.001***
Top 50 Fields of Study	0.625 (0.484)	0.646 (0.478)	0.021	0.005**
STEM Degree	0.194 (0.395)	0.201 (0.401)	0.008	0.221
Business Degree	0.201 (0.401)	0.200 (0.400)	-0.001	0.846
Military Studies	0.115 (0.320)	0.144 (0.351)	0.029	<0.001***
Other Top 50 Degree	0.114 (0.318)	0.100 (0.301)	-0.014	0.003**
N (Observations)	18877	5219		

Note: Sample compares all education achievements for Captains and Majors before and after the policy. The sample excludes achievements earned in the year 2020.



I also examined how the sector of education changed after the 2022 unmasking policy. Table 5 compares the distribution of the sector of education between the pre- and post-policy periods. It reveals share of degrees earned from a for-profit school was greater before the policy at 21% than it was after the policy at 14%. Public institutions had a greater share of the sample after the policy at 56%, compared to 48% before. The share of private, nonprofit institutions was almost unchanged between periods, but this decrease was not statistically significant.

Table 5. Balance of Sector of Education Between Periods

Variable	Before Policy	After Policy	Difference	P-value
Male	0.762 (0.426)	0.728 (0.445)	-0.034	<0.001***
White	0.765 (0.424)	0.729 (0.444)	-0.036	<0.001***
Hispanic	0.082 (0.274)	0.113 (0.317)	0.031	<0.001***
Public	0.479 (0.500)	0.558 (0.497)	0.078	<0.001***
Not for Profit	0.311 (0.463)	0.306 (0.461)	-0.005	0.467
For Profit	0.209 (0.407)	0.136 (0.343)	-0.073	<0.001***
Jaro-Winkler Distance	0.172 (0.129)	0.164 (0.128)	-0.008	<0.001***
N (Observations)	20049	5348		

Note: Sample contains all officers that earned a master's degree before the policy (2018-2022) and after the policy (2023-2025). Each observation is the last observation of an individual officer. The sample excludes degrees earned in the year 2020.

While the effect on earning a master's degree itself is unclear, these tables suggest that the policy did affect both the type of degree that officers earned and the sector of education that they earned their education in.

D. METHODOLOGY

To determine the effect of the 2022 policy, I created three models to analyze its relationship to the education outcomes of interest: the probability that an individual officer earned a master's degree, the probability that an officer who earned a master's degree



earned one of the top fifty most common fields of study, and the probability that an officer who earned their master's degree earned it from a for-profit institution. Each model was estimated three times with differing controls for personal and career demographics to assess the impact on majors, captains, and lieutenants. I used an ordinary least squares model (OLS) to conduct my analysis. Because the policy is expected to have the greatest impact on majors and captains, I ran each of the three rank groups through each model individually.

1. Modeling the Effect on Earning a Master's Degree

The first model I ran estimated the effect of the 2022 policy on the probability that an individual officer earned a master's degree. The dependent variable $Masters_i$ equals one when an officer's highest degree earned was a master's degree. The key variable of interest in this Linear Probability Model (LPM) is $After2022_i$, which is a binary equal to one if an officer's highest level of education was earned after 2022. I estimated the model on three different split samples: lieutenants, captains, and majors. $\beta_2 - \beta_4$ are coefficients on binary variables for demographic information equal to one when true for an individual officer. $\beta_5 - \beta_7$ are coefficients on binary variables that represent the career community of an individual officer. These binary variables are equal to one when an officer is part of that community. Otherwise, they are equal to zero. The omitted group is nonrated officers. I also ran the model with and without fixed effects for the commissioning source.

$$Masters_i = \beta_0 + \beta_1 After2022_i + \beta_2 Male_i + \beta_3 White_i + \beta_4 Hispanic_i + \beta_5 Rated_i + \beta_6 Corps_i + \beta_7 Space_i + \varepsilon_i$$

2. Effect on the Type of Degree Earned

The second LPM model estimated the probability that an individual officer earned their master's degree in one of the top fifty fields of study after the unmasking policy, conditional on earning a master's degree. The control variables are as described earlier. Again, I estimated it on the three subgroups with and without controls and fixed effects.



$$Top50Fieldof Study_i = \beta_0 + \beta_1 After2022_i + \beta_2 Male_i + \beta_3 White_i + \beta_4 Hispanic_i + \beta_5 Rated_i + \beta_6 Corps_i + \beta_7 Space_i + \varepsilon_i$$

3. Effect on the Sector of Education

The third model that I created estimated the effect of the policy on the probability that an officer's master's degree was earned at a for-profit institution, conditional on the officer earning a master's degree. Again, I ran the model for each rank group with and without controls for personal and career demographics and fixed effects for the commissioning source.

$$ForProfit_i = \beta_0 + \beta_1 After2022_i + \beta_2 Male_i + \beta_3 White_i + \beta_4 Hispanic_i + \beta_5 Rated_i + \beta_6 Corps_i + \beta_7 Space_i + \varepsilon_i$$

I turn to the formal economic analysis and results to assess these results when controlling for various factors.



V. RESULTS

In this Chapter I examine the results from my analysis. I start by addressing my first research question; what effect did the 2022 unmasking policy have on the probability of an officer getting their master's degree. Then I explore the effect on the probability that an officer earned one of the top fifty most common fields of study after the policy, conditional on getting a master's degree. Then I explore the effect on the probability an officer that earned a master's degree did so at a for-profit university. I close the chapter by addressing limitations in my research design.

A. EFFECT ON ACHIEVING A MASTER'S DEGREE

Table 6 displays the first set of results on earning a master's degree for lieutenants, captains, and majors. For ease of interpretation, I report the share of master's degree holders by rank at the bottom of the table, which is 18.2% for lieutenants, 73.1% for captains, and 68.1% for majors. The probability that a lieutenant earned their master's degree increased 3.3 percentage points after the 2022 policy. The raw data showed that both the share and count of lieutenants with master's degrees was on the rise before the policy. While taken together it seems as though the degree seeking behavior for lieutenants has changed, I cannot say that it is entirely due to the unmasking policy.

In contrast to lieutenants, captains had a 6.6 percentage point decrease (9.03%) to their own likelihood post-policy. This result is in line with Table 4, which looked at the balance of data for just captains and majors. It showed that when captains and majors were examined together, the share with master's degrees decreased from 72% before the 2022 policy to 68% after. I cannot conclude that the policy influenced captains seeking degrees, however. The raw data may be explained by the increase in lieutenants with master's degrees carrying those into the captain cohort as they promote. If this were the case, it could explain why I saw a decrease in the probability when I ran my regression, because there was a smaller number of captains without a master's degree to begin with.

The effect on majors was also not statistically significant, therefore I cannot conclude that the unmasking policy had any effect on majors seeking a master's degree.



I do find that males and Hispanics at each of these ranks have a lower probability of earning a master's degree. For example, the probability of a male lieutenant earning a master's degree is 4.1 percentage points lower than for a female lieutenant. The probability of male captains earning their master's degree was 2.9 percentage points less than female captains. Hispanic lieutenants and captains were 1.4 and 3.5 percentage points less likely to earn a master's degree compared to their non-Hispanic lieutenant and captain counterparts.

While the results for the career communities are statistically significant, they are not surprising. Compared to nonrated lieutenants, rated lieutenants experienced a 14.7 percentage point decrease in their likelihood to earn a master's, or an 80.77% decrease relative to the baseline mean. Once they are majors, their probability to earn a master's degree compared to nonrated majors increases by 12% relative to the mean. This conforms to expectations when considering the long training pipelines rated officers must complete making it difficult for them to pursue a master's degree until later in their career. Compared to the nonrated community, medical, dental, nurse, bio, JAG, and Chaplains and the Space community have large and significant increases, which aligns with the expectations for career fields with specialized credentials that are needed. With regard to my first research question, Table 6 suggests that the policy to unmask education had a positive effect on lieutenants and a negative effect on captains, although these effects were small and must be qualified by compositional shifts.



Table 6. Policy Effect of Earning Master's Degrees

	Probability of Earning Masters		
	2nd/1st Lts	Cpts	Majs
After 2022	0.033*** (0.005)	-0.066*** (0.008)	-0.018 (0.011)
Male	-0.041*** (0.004)	-0.029*** (0.008)	0.006 (0.013)
White	-0.004 (0.004)	0.001 (0.008)	-0.011 (0.011)
Hispanic	-0.014** (0.006)	-0.035*** (0.011)	-0.003 (0.016)
Rated	-0.147*** (0.004)	0.010 (0.007)	0.086*** (0.011)
Med/Dental/JAG/Chap	0.210*** (0.019)	0.281*** (0.060)	0.342*** (0.079)
Space Jobs	0.282*** (0.020)	0.361*** (0.062)	0.389*** (0.082)
Commissioning Source FE	X	X	X
Mean of Y	0.182	0.731	0.681
N	45,120	15,522	8,516
R ²	0.066	0.215	0.114
Adjusted R ²	0.066	0.214	0.111
Residual Std. Error	0.373 (df = 45087)	0.393 (df = 15491)	0.439 (df = 8486)

Notes:

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

B. EFFECT ON SEEKING A DEGREE IN THE TOP FIFTY FIELDS OF STUDY

Table 7 displays the results on earning one of the top fifty most common fields of study, conditional on earning a master's degree. Lieutenants experienced a 5.4 percentage point increase against a mean of 60.3% in their probability to study a top fifty field after



the 2022 policy. The probability for captains increased by 2.5 percentage points against a mean of 66.5%, though it is significant at the 5 percent level. Conditional on earning a master's degree, the probability of majors earning a degree in the top fifty fields increased by 6.8 percentage points. This represents an 8.96%, 3.76%, and 9.37% increase compared to the mean respectively. These results support what I found in the descriptive analysis. The 2022 unmasking policy did seem to have a positive correlation with the type of degree that lieutenants and majors pursued. There appears to be a positive correlation between the policy and the type of degree captains pursued, though this correlation is not as strong.

Male lieutenants were 4.7 percentage points more likely to earn a master's degree in one of the top fifty fields, compared to female lieutenants. Male captains and male majors were both 7.7 percentage points more likely than their female rank counterparts. The probability that Hispanic majors earned a degree from the top fifty fields of study was 6.8% less than non-Hispanic officers, significant at the 5% level. Compared to their nonrated counterparts, rated lieutenants were 3.2 percentage points less likely to earn a master's degree in one of the top fifty fields of study. Conditional on earning a master's degree, majors in the medical, bio, nurse, dental, JAG, and chaplain career fields had a probability of earning a degree in one of the top fifty fields of study that was 40.6 percentage points greater than nonrated majors. Majors in the space community were 41.9 percentage points more likely to earn a master's degree in one of the top fifty fields of study compared to nonrated majors. Both of these results were significant at the 5% level.



Table 7. Effect on the Top 50 Fields of Study

	Probability of Earning a Degree from the 50 Most Common Fields of Study		
	2nd/1st Lts	Cpts	Majs
After 2022 Policy	0.054*** (0.014)	0.025** (0.012)	0.068*** (0.014)
Male	0.047*** (0.012)	0.077*** (0.011)	0.077*** (0.016)
White	-0.010 (0.012)	-0.005 (0.011)	0.007 (0.014)
Hispanic	-0.011 (0.019)	0.005 (0.016)	-0.046** (0.020)
Rated	-0.032** (0.015)	0.007 (0.010)	0.008 (0.013)
Med/Dental/JAG/Chap	0.063 (0.121)	-0.221 (0.149)	0.406** (0.181)
Space Careers	0.113 (0.122)	-0.197 (0.150)	0.419** (0.182)
Commissioning Source FE	X	X	X
Mean of Y	0.603	0.665	0.726
N	8,228	11,345	5,799
R ²	0.038	0.016	0.026
Adjusted R ²	0.035	0.014	0.021
Residual Std. Error	0.481 (df = 8200)	0.469 (df = 11314)	0.441 (df = 5769)

Notes:

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

C. EFFECT ON FOR-PROFIT DEGREES

My final research question is to examine any impact on the probability of an officer seeking a degree from a for-profit institution, conditional on earning a master's degree.

Table 8 displays these results and shows a decrease in the likelihood that an officer went



to a for-profit school for their master's degree after the unmasking policy. Compared to their counterparts before the policy, lieutenants were 53.85% (7 percentage points) less likely to earn their degree from a for-profit institution, captains were 36.91% (8.6 percentage points) less likely than pre-policy captains, and majors were 14.22% (2.9 percentage points) less likely than pre-policy majors. These results support the descriptive analysis, which showed the share of degrees earned at for-profit institutions changed from 21% before the 2022 unmasking policy to 14% after. I conclude that there is a strong negative correlation between the 2022 unmasking policy and whether the education was from a for-profit institution for lieutenants and captains. There was a more moderate negative correlation for majors.

Demographic and career variables had no statistical significance on whether majors got their master's degree from a for-profit institute. Relative to females, male lieutenants were less likely to get their degree from a for-profit school. The probability for a male lieutenant was 4.3 percentage points less than a female lieutenant, at the 1% level of statistical significance. Conditional on earning a master's degree, the probability that a male captain earned their degree from a for-profit institution is 1.8 percentage points less than a female captain, though this result was statistically significant at the 10% level. A lieutenant's career community had no statistically significant impact. Rated captains, however, were 26.61% (6.2 percentage points) more likely to get a for-profit degree than nonrated captains. Space and medical, nurse, bio, dental, JAG, and Chaplains had a 34.9 and 39.3 percentage point decrease in their likelihood compared to nonrated captains, statistically significant at the 5% level.



Table 8. Effect on Earning from a For-Profit Institution

	Probability of a Degree Being from a For-Profit University		
	Lieutenants	Captains	Majors
After 2022 Policy	-0.070*** (0.010)	-0.086*** (0.011)	-0.029** (0.013)
Male	-0.043*** (0.008)	-0.018* (0.010)	-0.015 (0.015)
White	-0.005 (0.009)	-0.013 (0.010)	-0.005 (0.013)
Hispanic	-0.001 (0.014)	-0.007 (0.015)	-0.025 (0.018)
Rated	-0.011 (0.010)	0.062*** (0.009)	0.005 (0.012)
Med/Dental/JAG/Chap	0.108 (0.100)	-0.349** (0.171)	0.237 (0.200)
Space Careers	0.083 (0.101)	-0.393** (0.172)	0.231 (0.201)
Commissioning Source FE	X	X	X
Mean of Y	0.130	0.233	0.204
N	7,670	10,861	5,496
R ²	0.030	0.024	0.022
Adjusted R ²	0.027	0.022	0.017
Residual Std. Error	0.332 (df = 7642)	0.418 (df = 10830)	0.399 (df = 5466)

Notes:

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

D. LIMITATIONS

There are potential limitations in my research which could be addressed in future studies. The primary limitation in my research design is the lack of a real control group. If I had data for a control group that was not affected by the policy, I could use a difference-



in-difference model to create a true counterfactual argument. This would allow for a stronger causal claim of the policy effect.

Next, are the inherent limitations in OLS models. For example, OLS models assume a linear relationship among dependent and independent variables. It cannot properly model the relationship if it is actually nonlinear, meaning important patterns may have been missed. By using binary variables for my outcomes, my OLS model is a linear probability model (LPM). One of the inherent limitations in LPMs is their ability to predict impossible probabilities that are less than zero or greater than one. On the other hand, LPMs are appealing for their ease in interpretation.

My models also have very low Adjusted R^2 values, especially when estimating the relationship to the field of study and the probability that a master's degree was earned at a for-profit institution. This indicates that there are omitted variables (such as career timing, duty station, or peer-influence) that are not captured by the model but are having a far greater impact on officers' decision making regarding their master's degree.

My third potential limitation is the period that my research covers does not have many years in the post policy period. The policy that unmasked education was written in December of 2022 and effective on 01 January 2023. While I was able to get data from each year since the policy went into effect, there were only three years to examine. Similarly, I was only able to examine degree completion. If I was able to see degree initiation as well, I would be able to examine the impact on inducing an officer to start a degree, as well as finishing it.

My fourth potential limitation is the impact that the COVID-19 pandemic had on higher education as an institution. When plotting the total number and proportion that held master's degrees, there were no spikes for 2020. COVID-19 was very disruptive to the education environment and forced many changes (Shoaib et al. 23). My expectation was that there would be spikes in 2020. The absence of any visible effect from COVID-19 might mean there was some impact not properly accounted for or represented, such as pandemic measures becoming permanent when proven successful. The impact COVID-19 had on long-term master's attainment could be examined in future research.



My final potential limitation is the assumptions I made about how the Air Force places value on the type of degree and institution. The policy says that promotion boards will be able to see the type of degree that is earned and where it is from but gives no guidance on how to evaluate them. I made the assumption that the fifty most common fields of study are valued by the Air Force, but more research could be done to examine how the Air Force values different fields of study. Similarly, I chose to follow the literature on the civilian sector that suggests that for-profit institutions are considered lesser quality than public or nonprofit institutions. However, this could be tested in separate research. A different metric for measuring the institution could also be investigated.



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VI. CONCLUSION

In 2022, education was unmasked at major and lieutenant colonel promotion boards. This was done to incentivize officers to pursue advanced academic degrees as a means of human capital investment. It specifically pushed officers to develop knowledge in cutting edge technology and their military application to prepare for great power competition. My research examines the effectiveness of this policy by testing for correlations between the policy and the probability that an officer earns a master's degree. I also test for correlations between the policy and the type and quality of degree that an officer earned. While previous research has been done on masking policies, most have focused on promotion outcomes.

A. CONCLUSION

The intent of my research is to examine the effectiveness of the 2022 unmasking policy. The descriptive analysis reveals that any effect the policy had was moderate. The results of my formal analysis suggest that the policy may be achieving some of its desired effect, but not all. It does not appear to have affected the probability of officers earning master's degrees. It could be that the behavior of officers has changed and that officers are more likely to get a master's degree after 2022, but any behavior change does not appear to be correlated with the 2022 policy. While the masking policy did not have a strong impact on the probability of earning a master's degree, it was positively correlated with the type of degree officers earned. I concluded that after the 2022 policy, officers that earned a master's degree were more likely to earn a degree in the top fifty fields of study. This is a good indicator that the policy is doing what it was intended to do by influencing officers to pursue human capital investment over signaling. Finally, the negative correlation between the masking policy and for-profit institutions show that officers were less likely to get a degree from a for-profit institution, implying the quality of education went up after the policy. This could be interpreted as the policy, which argued for human capital development, working. Overall, while the policy may not have been effective at getting more officers to earn a master's degree, but it did push those who did seek them to get better quality degrees that were more in line with the Air Force strategy for great power competition.



B. RECOMMENDATIONS FOR FOLLOW ON RESEARCH

The first recommendation for follow-on research would be to test my results with an actual control group. I ran an LPM model without a true control group. Replicating my study with U.S. Army officer data would make it possible to run a difference-in-difference (DiD) model. A DiD framework would create a counterfactual argument, making a stronger case for determining causality.

Follow on research should also be done to examine the merits of the case for human capital. Research could be done on how different degrees impacted how an officer did at a promotion board. Previous research has looked at this as the effect of the interaction of degrees and the policy on the probability that an officer promoted. If researchers can obtain promotion board scores, they can research the relationship between the degree and the score. If board scores are not obtained, this study could still be done using date of promotion. The Air Force assigns line numbers for promotion based on an officer's ranking among officers selected for promotion. Future studies could get an idea of a selected officer's ranking based on when they promoted in the promotion cycle and use that to stand in for the promotion score.

The second and third order effects of the policy should also be examined; specifically, retention of officers with master's degrees and TA usage.

The literature on higher education would suggest that during periods when education is masked at promotion boards, officers with graduate education would separate from the military at a higher rate to seek better compensation for their education in the civilian sector. There is little research testing this suggestion. If this assumption holds would be vital information for senior leaders to have when considering future masking policies.

Similarly, future research should look at the effect the policy had on TA usage. This could be set up similar to the Hanlon paper that looked at the effect of the policy on several outcomes, such as usage. This research would inform senior leaders on how best to advocate for TA.



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