

Attracting the Right Volunteers

U.S. Army Functional Areas and the Voluntary Transfer Incentive Program

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This document was submitted as a dissertation in June 2020 in partial fulfillment of the requirements of the doctoral degree in public policy analysis at the Pardee RAND Graduate School. The faculty committee that supervised and approved the dissertation consisted of Albert Robbert (Chair), Tracy Krueger, and Timothy J. Kane.

This research was supported by the Army Talent Management Task Force.



For more information on this publication, visit http://www.rand.org/pubs/rgs_dissertations/RGSDA841-1.html

Published 2020 by the RAND Corporation, Santa Monica, Calif.

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Abstract

The United States Army changed its policy in 2010 on how officers move to small, specialized career fields called functional areas. The new policy, known as the Voluntary Transfer Incentive Program (VTIP), allows mid-career Army officers to volunteer to switch specialties to a functional area, subject to eligibility constraints and Army approval. This dissertation explores how functional areas adapted to this new environment, an environment in which their manpower only comes from volunteers. Using a new data set on VTIP applications and approvals, I quantify the supply of officers willing and approved to transfer to a functional area. Some functional areas struggle to attract officers who meet the Army's quality threshold on military performance. My research also shows that officers with low performance disproportionately apply for transfer to a functional area. While functional areas have a limited ability to change important components of job satisfaction and thus increase applications, they can alter their entry requirements. Few functional areas chose to significantly change their entry requirements. Those that did developed an alternate pathway of qualifications, implemented a change to the desired level of military experience, or introduced selection tests. I provide three recommendations. Functional areas should consider developing and using selection tests specific to important knowledge, skills, and attributes. After developing better insights into needed capabilities, the Army should increase its flexibility in selection decisions for a functional area. Finally, the Army should use the alternate promotion authority for some functional areas.

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Acknowledgments

Every dissertation is a lonely toil and a team project. First on my team is my wife Casey. Even before the coronavirus pandemic led to stay-at-home orders, involuntary homeschooling, and the conversion of our bedroom into an office, Casey was my sounding board and partner in research. The job got tougher as the research progressed. For that and so much more, she has my love and admiration. The kids were less useful, but I was sincerely blessed to hear them in the background (and occasionally the foreground) as I completed my writing.

The Pardee RAND Graduate School and the RAND Corporation have been amazing places to work and learn. My research could not have occurred without support from Michael Linick. I doubt I would have gotten anywhere without the help of Pete Schirmer. A whole host of RAND researchers – Dave Baiocchi, Irina Chindea, Charles Goldman, Kimberly Jackson, Kate (Kidder) Kuzminski, Caitlin Lee, Paul Mayberry, Linda Robinson, and Gery Ryan – made RAND an interesting and fulfilling place to work, learn, and explore. I’m in debt to each of them, as well as to many others who I have carelessly omitted. There are well over one hundred amazing students at Pardee RAND and I am humbled to be included among them. I’m especially indebted to Hannah Acheson-Field, Damien Baveye, Krystyna Marcinek, Jake McKeon, John Speed Meyers, and Russ Williams; I’m blessed to have such thoughtful friends.

I’ve been lucky throughout my life, including in the U.S. Army’s decision to sponsor my attendance at graduate school through the Advanced Strategic Planning and Policy Program. The last three years have been the most intellectually stimulating of my military career. Robert Davis, the director of the program, spent many hours on the phone with me and has been instrumental in my thinking. Paul Bubliss, Amos Oh, and Jeremy Kasper are great friends, unlicensed counselors, and fellow Army graduate students. I hope to be useful for the Army over the next several years.

My, under the direction of Major General (MG) J.P. McGee. MG McGee was quick to sponsor my work and improved it with his questions. Ayo Oladipofaniyi helped me on numerous occasions. Without the help of Grant Martin and his team at Army Human Resources Command, I do not think I would have gotten anywhere. His willingness to consider my research interests, take my calls, and help me collect my data led to this dissertation.

Lastly, my committee has been amazing. I am proud of my decision to ask Al Robbert to chair my committee. He is insightful, generous, organized, experienced, and supportive; I learned from his example and comments every day. Tracy Krueger and Tim Kane challenged me along the way, encouraging me to consider my research from many perspectives. My committee’s guidance, criticism, and support were instrumental, but any errors or omissions belong to me.

Abbreviations

| | |
|--------|---|
| ACC | Army Competitive Category |
| ADP | Army Doctrinal Publication |
| AERS | Army Educational Requirements System |
| AR | Army regulation |
| CF | Career field |
| CFD | Career field designation |
| CFDB | Career Field Designation Board |
| DA | Department of the Army |
| DTIC | Defense Technical Information Center |
| ETP | Exception to policy |
| FA | Functional area |
| FAO | Foreign Area Officer |
| GRE | Graduate Record Examination |
| HRC | (U.S. Army) Human Resources Command |
| KD | Key developmental |
| MI | Military Intelligence |
| MILPER | Military personnel |
| MTOE | Modified Table of Organization and Equipment |
| OEMA | Office of Economic and Manpower Analysis |
| OPMS | Officer Personnel Management System |
| ORSA | Operations Research/Systems Analysis |
| PME | Professional military education |
| SD | Standard deviation |
| STEM | Science, technology, engineering, and mathematics |
| TOE | Table of Organization and Equipment |
| TDA | Table of Distribution and Allowances |

| | |
|--------|---|
| TTHS | Trainees, Transients, Holdovers, and Students |
| U.S.C. | United States Code |
| VTIP | Voluntary Transfer Incentive Program |

1. Introduction

This is a study of how and why the U.S. Army changed entry requirements for officer technical specialists during the past ten years, whether those changes produced enough qualified candidates, and how these results can be understood as a labor market response with broader lessons for personnel management. Since 2010, the Army has allowed officers to choose a specialized career field, known as a functional area, through a program called the Voluntary Transfer Incentive Program (VTIP). Under VTIP, mid-career officers can volunteer to switch career fields to one reliant on specialized or technical knowledge (e.g. operations research, public affairs, or simulations operations), subject to Army approval, initially in exchange for a commitment to additional years of service. Promoted to increase officer retention and fulfill Army manpower requirements, VTIP replaced the Career Field Designation (CFD) Board, a system that had both voluntary and involuntary components.

Under VTIP, the Army set in motion a system in which officer career preferences shape the population within those specialized career fields. Only those who volunteer for consideration, and receive approval from a panel of senior officials, will join the functional area. VTIP forced functional areas to compete for officers' affection (to ensure an adequate supply of personnel) and adjust entry requirements to ensure that the *right* officers join the career field in sufficient quantity. Older manpower techniques using compulsory reclassification fell by the wayside.

VTIP Needs Research Attention

VTIP occupies a largely ignored segment in military personnel research for several years, despite a rich environment for potential analysis. To a large degree, this dissertation seeks to fill in some of the missing discussion. No papers in scholarly journals referenced VTIP according to a search of Google Scholar in January 2020. Similarly, few students at the Army War College or US Army Command and General Staff College referenced VTIP in their strategy research projects.¹ However, an absence of research does not necessarily indicate an absence of interest. The concept of talent management – loosely how the military services match the right people to the right jobs and help them achieve their full potential while keeping the objectives of the

¹ Student strategy research projects are archived in a publicly available repository called the Defense Technical Information Center (DTIC). Only those projects approved for public release and meeting a quality threshold, as determined by the school, will be archived in DTIC.

organization in mind – and broader concerns regarding service culture remain a passionate source of discussion, both among researchers and practitioners (Zimmerman, 2019).²

The few papers that did address VTIP were focused on selection criteria, i.e. the information used to assess each individual’s future effectiveness in a functional area. The functional areas that received attention – Foreign Area Officer (FAO) and Strategist – have two of the longest training pipelines (two years for a Strategist and up to three years for a FAO). The lengthy training pipeline provides several challenges for personnel management. It hinders the ability of the functional area to quickly increase the inventory of trained personnel, while consigning a significant portion of its mid-career officers to a trainee status. It also risks “leakage” along the way, as some officers prematurely exit the multi-year pipeline.³

The question regarding what type of information can predict an officer’s future effectiveness inspired a study by the FA 59 (Strategist) community which apparently led to new screening measures. As recounted by Bryant and Urben (2017), “the research investigated why an adequate GRE [Graduate Record Examination] score along with a good file in basic branch jobs did not necessarily predict success as an Army strategist” (p. 10). The research focused on finding the differences in attributes, proclivities, and mindset that separate the successful strategists from their peers. The early, preliminary findings included a greater propensity for openness and intellectual curiosity. Presumably, such research informed a change to entry requirements for FA 59, as applicants started to complete an assessment of attributes in late 2018 (Army Milper Message 18-282, 2018).

The introduction of VTIP provided functional area proponents with some flexibility to address challenges associated with a lengthy training pipeline because several questions emerged such as:

- Are there too many training requirements before someone is qualified to work? If yes, then priority can be given to individuals who have already met some or all the requirements.
- Are there too many people in the training pipeline? In addition to selecting people who can be in the pipeline for less time, VTIP allows for the selection of people earlier in their career.
- Are there too many people dropping from the training pipeline? If yes, then entry requirements can include markers that increase the likelihood of success in the training pipeline.

² As an example, the editor of the national security-focused *War on the Rocks* website noted, “Nine out of our 15 most-read new articles of 2019 dealt in some way with problems of service identity and culture, or personnel and education issues, as did several older articles that remained highly read” (Zimmerman, 2019).

³ Officers might exit the pipeline voluntarily or involuntarily; in either case, the numbers are likely small. Voluntary exits might result from a change in career goals, while involuntary exits might stem from unsatisfactory performance in training.

The functional area for FAOs, referred to technically as FA 48, used the flexibility of VTIP to improve the efficiency of its training pipeline.⁴ FAO managers authorized the acquisition of new FA 48 trainees at the 5-7 year point in an officer's career, rather than the seven-year point under the CFD (Adams et al., 2014). This earlier accession potentially increased the time that an officer could serve in a FAO billet during a 20-year career, though it came at the expense of pre-FAO experience. Some have questioned the value of such a trade, suggesting that reduced operational experience will lower the future value of FAOs (Mitchell, 2013).

At the same time FAO started receiving officers earlier in a career, FAO also emphasized the recruitment of officers who have already met some of its training goals (Mitchell, 2013).⁵ The standard Army⁶ FAO training model includes language training at the Defense Language Institute, a master's degree in a FAO-related discipline, and in-country training (Alrich et al., 2013, p.7). Some officers already possess one or more of those requirements, such as foreign language proficiency. By emphasizing the selection of officers who already meet some FAO training requirements, FA 48 could reduce the time its officers spent in training and reduce the risk that an officer will fail along the way. However, the selection based on previous training or certification might skew FAO selection away from those who would be the best fit for the career field (Mitchell, 2013).

Functional Area Manpower Ecosystem

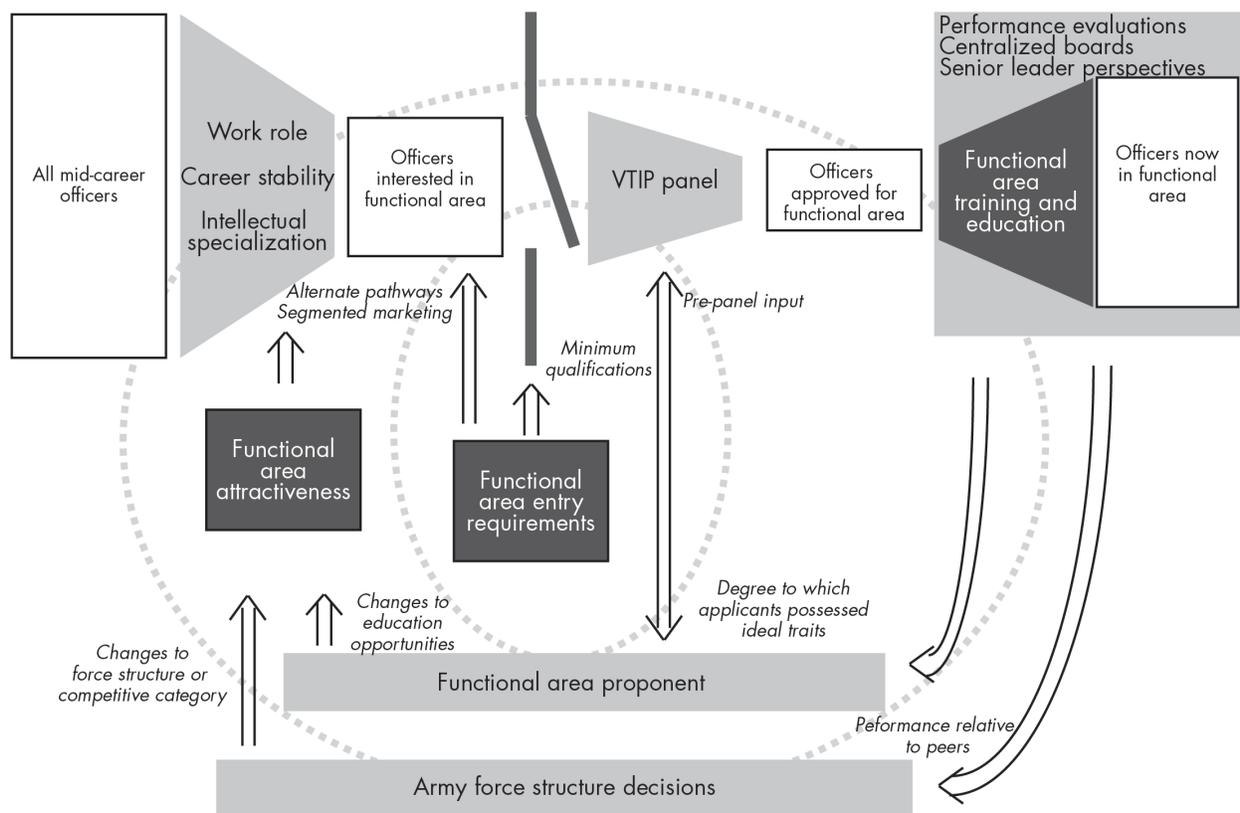
Functional areas and the VTIP policy that provides their manpower reside in a complex ecosystem. One way of understanding this ecosystem is to picture it as two ever-revolving cycles: (1) an inner cycle operating on a timeline of weeks and months and closely tied to the announcement and execution of VTIP panels and (2) an outer, years-long cycle that draws upon officer performance and eventually influences both a functional area's strategy and force structure decisions. Figure 1.1 illustrates this ecosystem.

⁴ In the acronym-heavy U.S. Army, functional area career fields will be typically annotated as FA XX, with XX corresponding to the individual functional area. FA 48, for instance, refers to the Foreign Area Officer functional area, with FA 59 refers to the Strategist functional area. Within Army literature and publications, the acronym FA, when standing alone, typically refers to field artillery. To avoid confusion, I will spell out functional area when used alone.

⁵ Mitchell quotes from a 2013 update from the FAO assignment desk at Army Human Resources Command: "Further, many of these officers enter (FAO career field) with existing language proficiency, requisite regional experience and/or a qualifying FAO-related Master's degree which already renders them partially complete of Army G-3 requirements as a FAO" (Mitchell, 2013, p. 38).

⁶ As Alrich et al. (2013) explain, the other services have their own approaches to selecting, developing, and managing FAOs.

Figure 1.1 Functional Area Manpower Ecosystem



The inner cycle, illustrated by the small dotted oval, is most easily understood by starting at its bottom left with the officers interested in transferring to a functional area. Functional areas can try to increase this supply of officers, by providing alternate pathways (i.e. a secondary set of eligibility criteria) into the functional area or by designing appeals to a segment of the officer population. Interested officers must then make it through a gate of functional area entry qualifications. The gate itself can be widened, in which qualification standards are eased, or narrowed, occurring when qualification standards are tightened.

Once officers submit applications to the VTIP panel, functional area proponents provide pre-panel input, such as a rank-ordering of candidates or a yes/no vote.⁷ Ultimately, the approval decisions reside with the VTIP panel. In addition to the flow of information into the VTIP panel, functional area proponents might also pull information from the panel. A functional area proponent might analyze applications to see the degree to which officers possess ideal traits for

⁷ The degree of direct involvement by the functional area proponent will vary. In some cases, a representative of the proponent office might review VTIP applications and provide the pre-panel input through the functional area's career manager at HRC. In some cases, the career manager at HRC will serve as the proponent's representative when providing pre-panel input.

the functional area. Using this information, the proponent can then make changes to entry requirements for future VTIP panels, and thus complete the cycle.

Like the inner cycle, the outer loop is also continually operating. Let's consider it from the bottom right, where functional area officers are performing out in the force. Within their role in the Army, functional area officers receive performance evaluations, compete for promotion within their competitive category, and influence the perceptions of junior officers who might apply through VTIP and senior Army leaders regarding functional area effectiveness. These feedback mechanisms are thus both formal and informal, providing a sense of the functional area's performance in comparison to other career fields. These feedback mechanisms potentially influence the functional area itself, its attractiveness to potential applicants, and force structure changes. Both a functional area or the larger Army might make changes, which in turn could influence the attractiveness of a functional area or the entry requirements to join it.

Functional areas, as a category of career fields for officers in the Army, differ from the rest of the Army in several ways. The extent of the departure for a functional area from more typical Army positions probably underscores its attractiveness to officers predisposed to a career in a functional area. Officers in a functional area typically serve as specialized technical experts outside of traditional command roles and combat organizations. As specialized technical experts, many functional areas emphasize graduate education. These factors – the work role and the intellectual specialization – are largely exogenous factors influencing the popularity of a functional area. Largely, however, is not the same as entirely. Given feedback mechanisms that consider the performance of functional area officers, both functional area proponents and Army force structure planners can make decisions that change the relative attractiveness of a functional area.

The attractiveness of a functional area starts to introduce long-term implications for the functional area. Popularity matters, as popular functional areas should generate a sizable applicant pool from which to staff their ranks. For a functional area that struggles with popularity, two potential outcomes emerge: a lack of officers in sufficient quantity or a lack of officers in sufficient quality. If a quality threshold is enforced, a VTIP panel might select fewer officers than the functional area needs. If the quality threshold is lowered, a functional area might start to perform at a lower level. These dynamics start to emerge again in the right side of the figure, and we are back to where we started.

Focus of the Dissertation

In this dissertation, I will explore how Army organizations responded when officers' preferences gained greater influence in career decisions. In particular, I am interested in how and why functional areas changed their entry requirements in the first ten years after VTIP's implementation. Now reliant upon volunteers, functional areas strive to attract enough qualified candidates to meet their manpower needs. Is there evidence of fine-tuning and experimentation?

If functional areas respond to feedback from VTIP panels, then fine-tuning and experimentation are indicative of VTIP as a marketplace. Conversely, is there continuity in entry requirements and few—if any—changes? If so, functional areas might be satisfied with the *status quo* or might lack the tools to identify and attract qualified applicants. Faced with the challenge of attracting qualified volunteers, functional areas possess authorities they can exercise and limitations beyond their control. As I show, the Army's preference for high-quality volunteers leaves some functional areas short of manpower, without flexible mechanisms to ensure that the supply of officers matches the demand for manpower.

This dissertation will describe the evolution of the officer career field system in Chapter Two. I will recount the circumstances that led to the creation of VTIP, intellectual currents that influenced Army thinking, and other initiatives that demonstrate consistent or divergent approaches to manpower management. Chapter Three will develop a method for quantifying the internal labor market of VTIP by analyzing the breadth of appeal for a functional area and the VTIP approval rate, as well as the role that quality thresholds serve in VTIP.

In Chapter Four, I will take a step back and look at the factors that intuitively influence functional area attractiveness, such as the type of work role or the opportunity for graduate school. Several factors – all difficult to change – influence the relative popularity of a functional area. I will then turn to factors that managers can and have changed: functional area entry requirements. I will show how the requirements changed and, because we will have a way to understand functional area popularity, how the requirements and standards changed in a predictable and systematic manner.

Chapter Five will discuss the policy implications of VTIP and the privilege afforded officer preference. When functional areas became dependent on officers' preferences, and the Army enforced a quality threshold for transfer, several functional areas risked manpower shortages. To prevent such shortages, functional areas must attract – through any of several means – sufficient interest from potential applicants. VTIP is just one Army policy that considers officers' preferences; a new assignment system will likewise consider officers' preferences with unprecedented importance. In conclusion, I will discuss how the observations from VTIP might predict the performance and challenges of the assignment system.

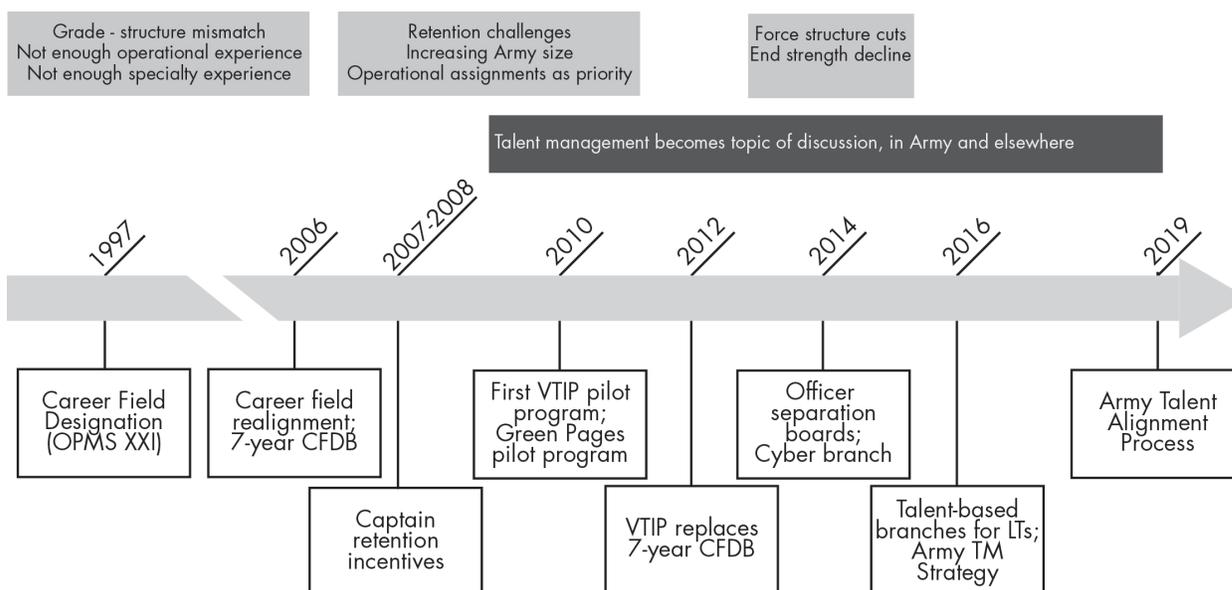
2. The Evolution of the Officer Career Field System

Introduction

VTIP did not arise spontaneously, but rather reflects long-standing Army concerns and relatively recent challenges. How the Army thinks about those concerns and challenges influenced policies that predated VTIP, set boundaries on acceptable alternatives, and predicts future policies. In this chapter, I will explore the history of several intersecting challenges: retaining a war-fighting focus in the Army; meeting retention challenges while maintaining quality; and building expertise in specialized fields.

At its essence, VTIP transformed the process by which the Army moves personnel into specialized career fields from a time-based, mandatory, centralized board to a less-time based, optional, retention-focused, centralized board. As this transition occurred, separate reforms – and indeed new ways of thinking – started to change other personnel mechanisms throughout the Army. As a result, two seemingly separate approaches operated in parallel: one that evolved from existing policies and one shaped by the disruptive implementation of talent management. At its core, the traditional approach uses performance evaluations to serve as the key information around which decisions are made. The centralized promotion board system epitomizes this approach, as do such policies as the CFD board and the legacy assignment determination system. VTIP, as a successor program to the CFD process, maintains key aspects (officer preferences and strong performance are important, but not altogether determinative) of this traditional approach. The more recent focus on talent management – accommodating and exploiting the different capabilities and preferences of soldiers – created a separate universe of policies and programs. Figure 2.1 charts the path as we proceed from the late-1990s to the present.

Figure 2.1 Timeline of Army Officer Manpower Reforms



In this chapter, the unique ways in which the Army delineates responsibility and expertise will be quite important. Understanding those terms will set the foundation for the rest of the discussion. In many respects, the key differences between two types of Army officer careers – those within a branch or those within a functional area – motivated the need for reform.

Occupational Specialties in the Army

Like many large organizations, the Army is comprised of individuals with a primary specialty. Just as a firm might be comprised of engineers, accountants, sales staff, administrative staff, janitorial staff, and many others, so too the Army has a variety of occupational specialties. These specialties are organized into discrete units, and each unit has "spaces" for certain numbers of certain specialties. An aviation battalion may have 20 spaces for pilots at the grade of lieutenant, nine pilot spaces for captains, two for major, and one for lieutenant colonel. Given the task of managing a very large organization, very broad categories encompass hundreds and thousands of officers at a time. The "fill rate" of those units, aggregated to certain higher levels, is a key measure of Army readiness. As such a critical marker, movement of officers into and out of specialties is a challenging balancing act of maintaining adequate fill rates Army-wide.

Occupational specialties form a core part of the identity for an Army officer. Lake (2019) observed that "Army officers tend to identify themselves in terms of their specialty rather than only in terms of their service" (p. 187). In the same vein, Millet (2019) described the phenomenon of "military occupationalism", which leads to "a temptation to create subtribes in the name of high expertise and special membership requirements" (p. 385). The membership in an occupational specialty influences many components of Army life, including:

- the type of training received
- the peer group for promotion
- the type of work conducted
- the type of work considered important for development, and
- the location of work.

Each occupational specialty can define itself by its training requirements and its developmental needs, leading to restrictions on the movement between specialties. An officer cannot move freely from one specialty to another without a substantial investment in training; even then, such an officer would have missed some developmental roles unique to the new specialty.

Branch

Most officers belong to a branch, which is a “grouping of officers that comprises an arm or a service of the Army in which an officer is commissioned or transferred, trained, developed, and promoted” (Army Regulation 600-3, 2019, p. 18).⁸ An arm or service describes such broad functions as infantry, field artillery, special forces, military intelligence, and several others. The Army creates specialized units with names that correspond to the branch, led by officers from that branch. Table 2.1 displays the current roster of Army branches.

Table 2.1 Army Branches by Competitive Category (Ranks of Major Through Colonel)

| Operations | Operations Support | Force Sustainment | Information Dominance |
|---|---------------------------------------|---|-----------------------|
| Infantry Armor Field Artillery Aviation Air Defense Artillery Corps of Engineers Military Police Chemical Special Forces Civil Affairs Psychological Operations | Military Intelligence Signal Corps | Logistics Quartermaster Transportation Ordnance Adjutant General Corps Finance Corps | Cyber |

SOURCE: Department of the Army, Army Directive 2017-08 *Competitive Categories for Commissioned Officers and Warrant Officers Serving on the Active Duty List and the Reserve Active Status List*, Washington, D.C.: Department of the Army, 2017.

Branch-assigned officers gain experience supporting and leading organizations within their branch, although they might also serve in positions or units outside of their branch. Officers enter the service assigned to a branch and might remain it in for the duration of a career or transfer to

⁸ The definition has remained stable over time. A nearly identical description can be found in OPMS XXI Task Force (1997, p. Gloss-2).

another branch. Every branch has a training system that supports the development of its officers, with most branch-specific training happening in the first few years of a career.

Branches vary in how closely they hue to a typical rank pyramid, with many junior officers at the bottom of the pyramid and far fewer senior officers at the top. The combat arms branches (infantry, armor, field artillery, aviation, and air defense artillery) require many more lieutenants and captains than other branches and correspondingly fewer officers at the higher ranks. With a need for the most junior officers to lead the multitude of combat arms platoons and companies, combat arms branches must commission a disproportionately large number of officers, especially in comparison to other branches' needs for more senior officers. This dynamic, as we will see, influenced the need for reform.

Regardless of the branch, officers complete assignments “deemed fundamental to the development of an officer’s capabilities in their core branch”, or what is known as a *key developmental* (KD) assignment (Department of the Army Pamphlet 600-3, 2019, p. 12). The positions might vary by branch, with a classic example following:

- Lieutenant: platoon leader
- Captain: company commander
- Major: operations officer and/or executive officer for a battalion
- Lieutenant colonel: battalion commander
- Colonel: brigade commander.

In some respects, branch officers can be thought of as generalists (OPMS XXI Task Force, 1997, p. 2-5). They can fill a variety of roles throughout the Army. Branch-specific training might extend for several months, but rarely more than a year. While generalists dominate the Army’s ranks, specialists are still required.

Functional Area

A functional area officer could be thought of as the inverse of a branch officer. If the branch officer is the generalist, the functional area officer is the specialist. While the branch officer leads or serves in organizations closely tied to the branch, the functional area officer typically will not. Commanding organizations is not a priority, or potentially even an option, for a functional area officer.⁹ Training can be extensive for functional area officers, with a premium placed on additional experience. Table 2.2 shows the current functional areas.¹⁰

⁹ An exception to this statement is Functional Area 40 (Space Operations); FA 40 officers command space organizations at the company- (captain), battalion- (lieutenant colonel), and brigade-level (colonel).

¹⁰ Two functional areas in Table 2.2 – Academy Professor (FA 47) and Marketing (FA 58) – will not be included in my analysis. FA 47 recruits officers through a separate process from VTIP. FA 58 started in 2019 and at this writing does not yet participate in normal VTIP panels.

Table 2.2 Army Functional Areas by Competitive Category (Ranks of Major Through Colonel)

| Operations | Operations Support | Force Sustainment | Information Dominance |
|------------|--|-------------------|------------------------|
| - None - | Information Network Engineering Strategic Intelligence Space Operations Public Affairs Academy Professor Foreign Area Officer Operations Research/Systems Analysis (ORSA) Force Management Nuclear and Counterproliferation Simulations Operations Marketing Strategist | Acquisition Corps | Information Operations |

SOURCE: Department of the Army, Army Directive 2017-08 *Competitive Categories for Commissioned Officers and Warrant Officers Serving on the Active Duty List and the Reserve Active Status List*, Washington, D.C.: Department of the Army, 2017.

The type of specialization varies substantially across functional areas. One might think of three broad categories, although Army documents do not use this categorization. In one category are functional areas based on technology, mathematics, and science. A second category involves business-related processes. The last category is focused on geopolitics, coordination, and communication. This categorization captures both the type of education the officers might receive and the entry requirements they might need to meet. I will refer to this categorization scheme elsewhere in this paper.

Functional areas provide a small, but significant, portion of the Army’s manpower. One way of viewing their contribution is to consider Army manning requirements. Those requirements classify every officer position by grade and career field; some positions can be filled by an officer from more than one career field and are classified as *immaterial* positions. Functional area requirements within the Army’s active duty officer requirements are listed in Table 2.3.

Table 2.3 Functional Area Requirements

| | Lieutenant | Captain | Major | Lieutenant Colonel | Colonel |
|---|------------|---------|-------|--------------------|---------|
| All Army requirement | 9,492 | 16,657 | 9,732 | 5,966 | 2,288 |
| Functional area requirements | 0 | 926 | 2,502 | 1,610 | 605 |
| Functional area requirements as percentage of Army requirements | 0 | 5.6 | 25.7 | 27.0 | 26.4 |

SOURCE: Army Requirements by Grade, spreadsheet received from Army Human Resources Command, 2020.

Fixing What isn't Working – OPMS XXI

With its need for both general operational experience and specialized experience, by the mid-1990s growing dissatisfaction with the status quo led the Army to pursue reforms. Operational units experienced turbulence, constantly rotating officers through positions to ensure all received necessary opportunities in important roles. Persistent manning shortfalls plagued multiple career fields. Functional areas relied on promotion floors to ensure adequate manpower at higher ranks. “Officers’ expectations and concerns about their careers continue to be expressed in a variety of ways, including ... an inordinate degree of worry about future assignments, and anxiety about career security and about the opportunity to continue pursuing a successful career” (OPMS XXI Task Force, 1997, p. viii). Signs pointed to a lack of both operational experience and specialized experience. The resulting reforms, commonly referred to as Officer Personnel Management System (OPMS) XXI, dramatically altered the relationship between operational and specialized experience.

Structural challenges in the Army spurred the call for reform. Those challenges developed because of the Army’s inability to balance its manpower needs between combat arms branches and the rest of the Army. The combat arms branches can be understood as a classic hierarchical pyramid, with many junior officers leading the multitude of platoons and companies, and relatively fewer officers needed at more senior grades. For those branches that support the combat arms, their structure is more of a diamond: relatively few officers are needed in the most junior grades, but many more officers are needed in the mid-career grades. To make such a system work, officers would need to transfer from the combat arms branches to the combat support and service support branches.

Functional areas added an additional challenge. In those years, many officers maintained two specialties: one within a branch and the other within a functional area. Officers were expected to grow their proficiency across both specialties in once what known as the “dual-track” system (OPMS Task Force, 1997, p. 4-7). The reality worked out differently. Most officers prioritized their branch experience at the expense of experience in a functional area, leaving the Army woefully short of officers with deep experience in their functional area. At the same time, too many officers pursued important developmental roles within their branch, depleting the average time sent in such “key developmental” operational positions (OPMS Task Force, 1997). The trends combined to create a situation where the Army perceived that too few officers had deep operational experience *and* too few officers had deep specialist experience.

The dual-track system did not refer to just the expectation of dual specialties, but also to the way in which the Army promoted officers. The promotion system uses career field quota floors to ensure that at least the minimum number of officers are promoted to meet the needs of the service. Under the dual-track system, each promotion could count against two separate skill sets: the branch and the functional area. Those officers who counted against the functional area quota typically had little experience in the functional area; those who pursued extensive experience in

the functional area were rarely promoted, especially to the higher ranks. “In the post-Cold War era, the army continued to promote officers based on their command efficiency reports, which were heavily dependent on success in branch-qualifying positions, performance at combat training center rotations, and time spent in the “muddy boots” army” (Mansoor, 2019, p. 315).

Creating consistent grade hierarchies might have addressed the problem. If all officer career fields had a traditional pyramid-shaped structure, with many junior officers and proportionately fewer senior officers, the Army might have faced less need to rebalance between the combat arms and everything else. The U.S. Air Force uses such a system, placing junior officers in specialties such as acquisition or operations research for their entire career rather than transferring them from another specialty (Conley and Robbert, 2009). If combat arms branches faced a pyramid with a wider base, requiring a greater proportion of lieutenants compared to mid-grade or senior officers, the Army might have used a force-shaping board to remove excess officers early in a military career.¹¹

That’s not the solution that the Army pursued. Fortunately for our research, the OPMS Task Force (1997) explicitly explained their reasoning. Using the term “muddy boots,” the Task Force placed a premium on the “the right values and a sense of Army tradition and culture” that accompanies operational assignments early in a career (p. xviii). That is, “Through these early operational assignments, young officers acquire an understanding of and appreciation for the “muddy boots” culture of the Army and its fighting mission” (p. xviii). Placing young officers in functional areas risked them missing these formative cultural experiences, in the Task Force’s estimation. Functional area assignments were distinct, at least to some degree, from the muddy boots Army.

The Army implemented a reform in the late 1990s that ended the dual-track system and replaced it with the career field designation system. At the ten-year point in the career, after selection to the rank of major, a centralized board would place officers in one of four broad categories based on the officer’s submitted preferences;¹² this board was known as the career field designation board (CFDB). Officers would remain in that category throughout a career. Of the four categories, Operations consisted of all officers in a branch. The other three categories contained functional area officers. All officers would enter the Army in a branch and serve their first decade predominately in those assignments, but a portion would now enter a functional area later in a career. Table 2.4 shows the structure of this new policy.

¹¹ The United States Marine Corps routinely uses a force-shaping board. See Robbert et al. (forthcoming).

¹² These categories also served as competitive categories for promotion consideration. During this period, most Army officers started in one large competitive category – the Army Competitive Category (ACC) – and stayed in it through promotion to O-4. Upon career field designation as an O-4, officers moved to one of these four competitive categories. In later reforms, officers competed for promotion within ACC through O-3 before moving to one of three or (later) four competitive categories.

Table 2.4 OPMS XXI Career Field Categories

| Operations | Information Operations | Institutional Support | Operational Support |
|--|---------------------------------------|--|------------------------------|
| All 16 branches | <i>FA 30 (Information Operations)</i> | <i>FA 43 (Human Resources)</i> | FA 51 (Acquisition) |
| FA 39 (Psychological Operations and Civil Affairs) | <i>FA 34 (Strategic Intelligence)</i> | FA 47 (Academy Professor) | FA 48 (Foreign Area Officer) |
| FA 90 (Multifunctional Logisticians) | <i>FA 40 (Space Operations)</i> | FA 49 (Operations Researcher / Systems Analysis) | |
| | FA 46 (Public Affairs) | <i>FA 50 (Strategy and Force Development)</i> | |
| | FA 53 (Systems Automation) | FA 52 (Nuclear Research and Operations) | |
| | <i>FA 57 (Simulations Operations)</i> | | |

NOTE: Italics indicates functional areas created by OPMS XXI

SOURCE: Burnett, 1997, p.7.

By introducing a career field designation system, the Army maintained its preference for muddy boots development while creating a mechanism for rectifying structural challenges. Up to half of officers designated to serve in a functional area would come from four combat arms branches (OPMS Task Force, 1997, p. xvii). By transferring the personnel inventory away from the combat arms branches, and other branches to some extent, OPMS XXI afforded those remaining in a branch a greater opportunity to serve in important developmental jobs.

The separation of branches and functional areas also addressed the challenge of growing specialized experts. With the demise of the dual-track system, functional area officers could “focus their experience and achieve excellence” all within a “viable career path” (OPMS Task Force, 1997, p. 4-17). Separated from their branch brethren, functional area officers could compete for promotion and advancement without the need to maintain qualifications in a branch.

Finally, the OPMS Task Force recognized the need for additional functional areas, introducing several functional areas and shaping a landscape that, over 20 years later, still looks familiar. Initial recommendations included seven new functional areas¹³ (OPMS Task Force, 1997, p. 5-5). An eighth functional area – Strategist – was added shortly thereafter (Haworth, undated, p. 33).

Several reforms changed aspects of what became known as OPMS XXI, but key features remain recognizable today. The Army continues to inculcate its values and expectations through assignments to a branch, delaying an assignment to a functional area until later in a career. The importance of muddy boots persists (Bryant and Urben, 2016). Officers continue in one career field at a time, with no expectation of a dual specialty. After the spurt of new functional areas, only one additional functional area arrived between 1998-2018: FA 29 (Electronic Warfare). As

¹³ The new functional areas were FA 24 (Information Systems Engineering), FA 30 (Information Operations), FA 34 (Strategic Intelligence), FA 40 (Space Operations), FA 43 (Human Resources Management), FA 50 (Strategy and Force Development), and FA 57 (Simulations Operations).

OPMS XXI entered implementation, new challenges would arise in officer career management. A shortage of officers would soon take hold.

Officers Shortages During the Global War on Terror

The structural reforms of OPMS XXI did not anticipate officer inventory shortages that strained the Army amidst wars in Iraq and Afghanistan. Writing for the Congressional Research Service, Charles Henning (2006) noted that by 2007, the Army projected a shortage of approximately 2,700 officers, primarily of senior captains and majors. By the next year, the gap would widen to about 3,700 officers and would remain above 3,000 through 2013. For several branches, fewer than 85 percent of positions could be filled. Some responses to the shortfall likely exacerbated the problem, while others had little effect. However, voices internal and external to the Army identified a new way of approaching the challenges.

Attempts to Understand the Cause of the Shortage

Many potential causes for the junior officer shortage were posited in the late 2000s. Some primarily identified Army decisions to bring fewer officers into the military during the post-Cold War drawdown. To maintain a force of 482,000, Henning (2006) noted that that the Army must induct about 4,300 new lieutenants each year. Between 1991-1999, new accessions ranged between 3,605 and 4,218 (pp. 3-4). With fewer lieutenants present to grow into the majors of a decade later, a shortage predictably (at least in hindsight) formed. In addition to lower accessions, additional officers already in the service were removed through voluntary and involuntary separation programs.

Others pointed to the wars' effect on retention, especially for majors. Brown (2008) found that about 35 percent of majors had enlisted service prior to commissioning; in turn, those officers would reach the full retirement eligibility of 20 years before reaching 20 years of commissioned service (Wardynski et al., 2010, p. 15). In a survey Brown conducted of officers attending the Command and General Staff College, many pointed to the wars' effect on family life and indicated a preference to exit the military at the earliest opportunity after twenty years of service.

Still others pointed to the problems of retaining junior officers, particularly after post-commissioning service obligations expired.¹⁴ Many junior officers leave the military shortly after fulfilling their commitment, with the separation rates corresponding to the Army's investment in undergraduate education. For example, "Nonscholarship (Reserve Officer Training Corps) and (Officer Candidate School) officers remain in the Army through 8 years of service at relatively

¹⁴ Service obligations vary by commissioning source and scholarship. United States Military Academy graduates must serve five years on active duty. Reserve Officer Training Corps (ROTC) scholarship recipients must serve four years on active duty. ROTC non-scholarship recipients and Officer Candidate School graduates must serve three years.

high rates. Two-year scholarship officers continue at the next highest rate, followed by 3-year scholarship officers, West Point graduates, and then 4-year scholarship officers” (Wardynski et al., 2010, p. 50). This trend emerged for classes that entered school in the 1980s and continued to the present. By comparison, about 60 percent of West Point and Reserve Officer Training Corps graduates from the 1970s remained on active duty through eight years of service, but that rate declined to about 40 percent by the mid-1980s (p. 10). Options outside of the military enticed those in whom the Army had invested the greatest and screened the most to pursue a different career. The decades-long trend in lower retention left the Army critically short of seasoned captains.

Attempts to Address the Shortage of Officers

Faced with the yawning gap in mid-grade officers, the Army pursued four policies to address the short-coming. One of the policies – increased accessions through Officer Candidate School (OCS) – brought more officers into the Army, in part to alleviate a shortage of officers at higher ranks. A related policy increased the promotion opportunity and decreased the promotion timing to the ranks of captain and major (Wardynski et al., 2010, p. 7). Two other policies – a retention incentive for captains and a separate retention incentive for newly commissioned lieutenants – tried to extend the service of officers who might otherwise exit the military.

Accessions through OCS dramatically increased. From 2001 to 2005, the Army almost doubled the quantity of officers commissioned through OCS (GAO, 2007). During the same period, the quantity of officers commissioned through West Point and ROTC remained relatively unchanged. OCS would continue to grow through fiscal year 2007, reaching a capacity of 1,650 officers commissioned through that program.

While the surge in OCS commissioning brought more officers into the Army, decreased promotion timing and increased promotion opportunity advanced officers to the middle ranks faster and with fewer obstacles. The time-in-grade for promotion from first lieutenant to captain decreased from 42 months to 38 months, while a one-year decrease accompanied promotion from captain to major (GAO, 2007). At the same time, promotion opportunity increased. The Army promoted over 98 percent of eligible first lieutenants to captain and over 97 percent of eligible captains to major; both rates significantly exceeded the historic goals of 90 percent and 80 percent, respectively (GAO, 2007; GAO, 2009).

The doubling in commissioning through OCS and the decrease in experience undercut one of the goals of the OPMS XXI reforms: increasing the opportunity for officers to serve in important developmental jobs. Whereas the pre-1997 Army struggled to place mid-grade officers in developmental roles, the problem shifted to the most junior officer ranks. With an over-production of lieutenants, a lower proportion of junior officers could serve as platoon leaders or other important developmental roles. Those that did must rotate through the position quickly, to afford the opportunity to others. While they must rotate quickly, the window in which to gain the experience shrank. These interlocking dynamics reduced the experience of junior officers. At the

same time, the very high promotion rates removed the Army’s ability to cull less-effective officers.

Two other policies sought to extend the service of officers beyond their initial service obligations. One program – the so-called “menu of incentives” – offered a range of options to captains in exchange for three additional years of service. Options during the first phase (March 2007 to April 2008) included a cash bonus between \$25,000 and \$35,000, attendance at a civilian graduate school, attendance at military training, transfer to a different branch or functional area, or transfer to a different post. A second phase (April 2008 to November 2008) restricted the options to the cash bonus, attendance at a civilian graduate school, or attendance at the military foreign language school (GAO, 2009). Officers who participated in the program overwhelmingly chose the cash bonus option, as reflected in Table 2.5.

Table 2.5 Number of Captains Participating in the Menu of Incentives, September 2007 through November 2008

| | Cash bonus | Civilian graduate school | Choice of branch or functional area | Choice of post | Military training | Total participants |
|-------------------------------|------------|--------------------------|-------------------------------------|----------------|-------------------|--------------------|
| Total number of contracts | 14,497 | 243 | 320 | 185 | 72 | 15,317 |
| Percentage of total contracts | 94.6% | 1.6% | 2.1% | 1.2% | 0.5% | 100% |

SOURCE: Government Accountability Office, 2009, p. 38.

Some have argued that the menu of incentives failed to achieve its policy objectives. The program’s advent in September occurred after the summer period when many officers fulfill their service obligations (Piper, 2008). West Point officers who had commissioned in 2002 and ROTC scholarship officers who had commissioned in 2003 fulfilled their service obligations in the summer of 2007 and could depart the Army at that time. The broad windows of eligibility attracted interest most frequently from officers who had already decided to remain in the Army beyond their service obligations; one analysis found that 77 percent of officers who participated in the program had already committed to remaining in the Army (Wardynski et al., 2010).

A separate program, known as the Career Satisfaction Program (CSP), sought to lengthen the service of junior officers by providing them something of value: the guarantee of the branch of choice; the guarantee of the post of choice; or the option to attend fully-funded graduate school in the future. Open to West Point and ROTC scholarship recipients, those who participated in

CSP accrued an additional three-year service obligation.¹⁵ As Wardynski et al. (2010) explained, CSP differed from the menu of incentives in important ways. CSP targeted those officers (West Point and ROTC scholarship recipients) in which the Army had invested the most and had screened the most thoroughly prior to commissioning. The menu of incentives, conversely, applied to everyone and lacked any quality thresholds.

Graduate School Became Increasingly Rare

CSP provided some cadets the option – in exchange for an additional commitment – to attend graduate school, but opportunities to attend graduate school have declined for most officers over recent decades. Colarusso and Lyle (2014) found that graduate school slots declined from “5,500-7,000 annual slots in the mid-1980s to less than 400 by 1995” (p. 109).¹⁶ Outside of retention incentives such as CSP, graduate school attendance occurs through the Advanced Civil Schooling (ACS) program. The ACS program distributes the graduate school quota to the branches and functional areas throughout the Army. Most of the quota will be consumed either as part of preparation for a teaching tour at West Point or as part of functional area training. By the time officers were selected for brigadier general, nearly half of functional area officers had a graduate school degree compared to about 17 percent for their basic branch peers (Bryant and Urben, 2017).

Graduate school removes an officer from traditional Army jobs. It might be a significant investment in the capabilities and human capital of the recipient, but it comes at the cost of traditional performance evaluations in jobs that make individuals competitive for promotion (Colarusso and Lyle, 2014, p. 110; Mathews, 2005, p. 66). With officers progressing through their career based on standardized promotion timing, the 1-3 years an officer spends in graduate school would be in lieu of more traditional roles during that time.

One might wonder why the Army would not value graduate school attendance as much as many Army jobs. After all, graduate school might provide an officer with many benefits: challenging common assumptions (Gerras and Wong, 2013); building adaptability (Colarusso and Lyle, 2014), developing an “Athenian” mindset (Bryant and Urben, 2017), or even just for its signaling value (Mathews, 2005). Anti-intellectualism might be the culprit, manifested in a preference for operational experience over intellectual pursuits. Of those promoted to the highest ranks, civilian graduate school is rare (Colarusso and Lyle, 2014). Some senior leaders might even disparage intellectual pursuits (Mathews, 2005). With a pathway to senior ranks that avoids

¹⁵ The graduate school option in CSP provided the guaranteed opportunity to attend graduate school later in the career. If the officer exercised the option, the officer would accrue an additional service obligation of three days for every day spent in school.

¹⁶ One reviewer advised that the “5,500-7,000” estimate for graduate school slots is contentious and might be too large. In addition, that era coincided with dual-track specialties, raising the possibility that many or most officers who attended graduate school did so as part of their functional area training.

exposure to either specialization or functional area jobs, officers saw less value in stepping away from operational positions.

More Changes to Career Field Structure

While the Army wrestled with the manpower shortages and retention challenges, OPMS received a significant facelift. Recall two key features of the reforms brought about by OPMS XXI: the 10-year career field designation board and the separation between (most) functional areas and branches for promotion consideration. In 2006, new policies upended those precedents.

The 2006 reforms recalibrated promotion categories, “align(ing) branches and functional areas into groups and categories with similar functions” (Human Resources Command, 2006). The four existing categories collapsed into three categories of 1) Maneuver, Fires, and Effects, 2) Operations Support, and 3) Force Sustainment. In the ever-changing world of Army nomenclature, these competitive categories were called *functional categories*, in lieu of the previous term *career fields*.

Table 2.6 2006 OPMS Revision

| Maneuver, Fires, and Effects | Operations Support | Force Sustainment |
|-------------------------------------|--|-----------------------------------|
| Infantry | Military Intelligence | Transportation |
| Armor | Signal | Ordnance |
| Aviation | FA 24 (Telecommunications Systems) | Quartermaster |
| Field Artillery | FA 34 (Strategic Intelligence) | FA 90 (Multifunctional Logistics) |
| Air Defense Artillery | FA 40 (Space Operations) | Adjutant General |
| Engineer | FA 47 (Permanent Academy Professor) | FA 43 (Human Resources) |
| Military Police | FA 48 (Foreign Area Officer) | Finance |
| Chemical | FA 49 (Operations Researcher / Systems Analysis) | FA 45 (Comptroller) |
| Special Forces | FA 50 (Force Management) | FA 51 (Acquisition Corps) |
| Civil Affairs | FA 52 (Nuclear and Counterproliferation) | |
| Psychological Operations | FA 53 (Information Systems Management) | |
| FA 30 (Information Operations) | FA 57 (Simulations Operations) | |
| FA 46 (Public Affairs) | FA 59 (Strategic Plans and Policy) | |

SOURCE: Army Human Resources Command, 2006

The realignment of the functional categories changed who might be considered one’s peers when going before a promotion board. Most functional areas remained positioned with each other. Two functional areas (FA 30 and FA 46) broke away from the herd and resided with the combat arms branches. The relationship would not stand the test of time, with both FA 30 and FA 46 eventually moving to the Operations Support functional category.

The 2006 OPMS revision also moved the Career Field Designation Board from the 10-year mark in a career to the 7-year point. By moving the board earlier, officers could begin their transition to a functional area as a captain, rather than after promotion to major. The three-year shift subtly chipped away at the operational experience of officers moving to a functional area in favor of their specialization in the functional area, and thus represents a slight movement away from the muddy boots attitude of OPMS XXI. The Army was still far from allowing officers to start their career in a functional area.

An account from the 2009 CFD board illustrates the process. Officers commissioned in 2002 went before the CFD board in 2009. Each officer submitted three preferences for the board, listing the desired functional areas or the current branch in rank order of preference. Infantry branch recounted the outcome of the board (Ross, 2010 Of the 201 infantry officers who went before the board, 69 were selected to transfer to a functional area and 132 remained as infantry officers.¹⁷ Of the 69 picked for a functional area,

- 24 were selected for their first choice of functional area
- 27 were selected for their second choice of functional area
- 6 were selected for their third choice of functional area
- 23 did not submit a preference, and of those 12 were selected for a functional.

Of those selected for their second or third choice, the author reported that remaining in infantry was a lower preference, leading to the conclusion that “one could assume that around 12 officers didn’t get what they wanted” (p. 4). This is true if one’s criteria includes that officers selected to leave infantry, except for those whose preferences are unknown. However, most officers whose preferences are known desired to do something other than that to which they were selected, as of the 57 officers selected according to their preferences, only 24 received their first choice.

Changing Narratives: An Emphasis on Talent

Amidst persistent mid-grade officer shortages, new arguments challenged long-standing personnel policies and suggested novel approaches to understanding the root causes underling those shortages. Initially, specialists at the Office of Economic and Manpower Analysis (OEMA), an analytical center located at West Point, released the early salvos; they would be joined by voices outside of the Army shortly.

In a series of monographs started in 2009 and released by the US Army War College’s Strategic Studies Institute, Casey Wardynski, David Lyle, and Michael Colarusso argued that mid-grade officer shortages resulted less from accession cutbacks or the growth in officer positions, and more from the Army’s approach to accessing, developing, retaining, and employing its officers. The Army lacked the mechanisms, or even the strategic model, to link

¹⁷ The source does not address whether the 132 officers who remained as infantry officers placed infantry as their first, second, or third choice.

each facet of an officer's lifecycle or drive decisions and actions by the Army and its personnel bureaucracy. As a result, an ignorant, overly centralized, and desynchronized approach could not provide the circumstances necessary to retain officers.

Ignorance of an officer's capabilities was endemic to the Army's personnel management style. Wardynski et al. (2009) used the Engineer branch and a notional requirement for reconstruction (such as in Iraq, Afghanistan, or New Orleans) to illustrate the point.

Efforts to adapt to these new missions have generated considerable demand for officers who are professionally certified to guide structural, hydraulic, geological, transportation, power distribution, and other engineering projects. While the Army carries hundreds of engineer officers on its ledgers, many of them lack the specific competencies required to conceive, plan, or execute reconstruction projects. Conversely, many engineer officers do possess these competencies, but as they stem from developmental experiences outside of those recorded within the current personnel information set, the Army does not "know" who or where they are in time of need (p. 36).

The ignorance of officer capabilities stemmed from systems and approaches that failed to record or acknowledge those capabilities. Outside of a narrow range of skills often defined by graduation from a training course, the personnel system treated officers as largely interchangeable components, differing only by rank and career specialty (Wardynski et al., 2009, p. 34). Either everyone had the capability or the Army did not know if the capability existed in enough quantity, if at all.

Centralization was also a key facet of the Army's approach to personnel management, especially in the execution of job switching. A bureaucracy, Army Human Resources Command (HRC), used an "industrial era" approach to personnel management that prioritized simple accounting: lining up available officers with projected gaps in units (Wardynski et al., 2009, p. 34). The gaps arose not from the insight from units with the eye toward capabilities, but rather from projected vacancies based on standardized manning documents. If unit X was projected to lose an infantry major, unit X could receive another infantry major, but there was little ability for the unit to enumerate any desired specific knowledge, skills, or abilities of that inbound major.¹⁸

It might seem counterintuitive to fault an organization for centralization and then fault it for desynchronization, but Wardynski et al. (2009) illustrate the organizational characteristic in several circumstances. For instance, accession sources – West Point, ROTC, and OCS – operated without a coherent strategy that linked the programs. As another example, a reliance on OCS,

¹⁸ Admittedly, requiring the unit to do so would represent an additional task to them, and one in which they may perceive little value. There is value in officer homogeneity in many units, as many units' expectations of their staff officers are equally homogenous.

through which enlisted Army soldiers can earn a commission,¹⁹ robbed the Army of leaders in the enlisted force.

To address these challenges, the researchers at the OEMA provided several recommendations. Linking together accessions, development, retention, and employment into a coherent and integrated strategy might help avoid short-sighted pitfalls. Focusing on the unique characteristics and capabilities of officers, and especially on retaining those with “the critical dimensions of intelligence, of aptitudes for rapid learning and adaptation,” might position the Army to retain those most likely to become effective senior leaders (Wardynski et al., 2009, p. 15). Bringing together officers with their capabilities and units with their competency requirements in an internal labor market might provide officers with increased job satisfaction and the Army with a broader array of competencies.

Other voices outside of the Army echoed some of the OEMA team’s concerns. Perhaps the most influential of the early voices was Tim Kane, in a provocatively titled article for *The Atlantic* called “Why Our Best Officers are Leaving” (2011). Using survey results from U.S. Military Academy graduates from six classes between 1989 and 2004, Kane found that an “astonishing 93 percent believed that half or more of “the best officers leave the military early rather than serving a full career.” Most respondents pointed to the personnel bureaucracy as the main cause of weak retention, rather than the operational tempo or other explanations.

While the OEMA team highlighted the role of purposefully linking the stages of a career, Kane considered the interplay between promotions, evaluations, and job assignments:

Performance evaluations emphasize a zero-defect mentality, meaning that risk-avoidance trickles down the chain of command. Promotions can be anticipated almost to the day— regardless of an officer’s competence—so that there is essentially no difference in rank among officers the same age, even after 15 years of service. Job assignments are managed by a faceless, centralized bureaucracy that keeps everyone guessing where they might be shipped next.

Like OEMA, Kane recommended an internal talent market, albeit freer of constraints. Officers would be free to apply for any open job, including those at higher ranks. Hiring authority would reside with unit commanders, including the authority to maintain an officer in an existing job or role.

Talent Construct Informs Policy

The dialogue around talent started to influence policy almost immediately following OEMA’s initial monographs, with talent-focused initiatives starting in 2010. From its outset, these policies generally focused on aligning individuals with jobs that suited them (and their

¹⁹ Officer Candidate School commissions officers through two pipelines. One pipeline focuses on currently serving enlisted members of the Army, while another pipeline focuses on college graduates who are not in the military.

preferences) while providing the Army with expanded options for retaining those with the most in-demand talents. At the same time, the mechanisms that the Army employed privileged past displays of talent, rather than accounting for future potential in new circumstances.

The First Iteration of VTIP

In late 2009, Army HRC announced a new method for moving officers from one career field to another: the Officer Service Management Pilot Program (Milper Message 09-243, 2009). The program allowed captains and majors, with between 3-14 years of service, to transfer from one branch to another branch or a functional area in exchange for three additional years of service. The architecture of the program would remain stable in what would soon become the Voluntary Transfer Incentive Program (Milper Message 10-050, 2010).²⁰

From its outset, the program was billed as a retention initiative.²¹ The announcement message highlighted that, through the program, “officers (can) adjust their service paths based on Army requirements and realized service goals thereby increasing retention among officers with the skills, experience, and commitment to lead our Army in the challenging years ahead” (Milper Message 09-243, 2009). Public communication reiterated the central role of retention within the program (Human Resources Command, 2010).²²

While public communication highlighted the role of retention, a knowledgeable insider who I interviewed noted other challenges with the CFD system that contributed to the need for reform. The CFDB evaluated each officer against the requested branch or functional area and awarded a score for each one. The panel, however, lacked significant insight into the officers’ capabilities. Armed with little information beyond the officers’ preferences and their performance evaluations, mismatches were bound to occur. Aggregated, this system could produce underqualified functional areas. Further, when officer preferences were less than the Army’s needs for a career field, officers were designated to serve in a functional area against their preference. This produced many requests for reconsideration, as officers sought to escape an unwanted new career field. (Interview 61, 2020).

Initially, the CFDB continued to operate in the background. By this point, such boards occurred at the four-year mark in a career and the seven-year mark in the career. The four-year CFDB was an opt-in board, meaning that only those who elected to compete within the board would be considered for transfer. Only select functional areas participated in the four-year

²⁰ The program’s name change occurred quickly. The Officer Service Management Pilot Program was rechristened as the Voluntary Transfer Incentive Program when the Army released the panel results.

²¹ Lazear and Gibbs (2015) describe three circumstances for placing an employee in a job that requires new skills, or what they refer to as a *lateral transfer*. One such reason, consistent with the objective of Voluntary Transfer Incentive Program, is the retention of a talented employee. Other reasons include moving an employee after identifying that the employee is in the wrong career field or for developing a broader set of skills in managers.

²² In an article on the army.mil official website, the unnamed author states, “In an information paper written by Lt. Col. Dameion Logan of OPMD, VTIP is described as a retention tool, while providing transparency to the field.”

CFDB²³ (Milper Message 10-102, 2010). The seven-year CFDB considered officers who were still in basic branches; those already serving in a functional area based on the four-year CFDB were locked into the functional area. For those eligible to be considered by the board, participation was mandatory. Failure to submit the requirements preferences carried an ominous outcome, highlighted in the announcement message in both bold and underlining: functionally designated based on Army requirements (Milper Message 10-065, 2010).

In 2012, VTIP replaced the 4-year and 7-year CFDB. With the suspension of the CFDB, functional areas receive personnel almost exclusively through VTIP (Pavlick, 2011). The volume of applications considered by each panel suggests a lot of demand for transferring career fields. The first panel in 2010 considered 64 officers (Human Resources Command, 2010), but the volume of applications grew to several hundred per panel over the decade. The interest in VTIP far overshadows a predecessor to VTIP, the option to switch branches as part of the menu of incentives retention in 2007, that drew only tepid interest.²⁴

Because of its origin as a retention program, VTIP always included a quality threshold that an officer must meet to qualify for transfer. In this way, the Army could prioritize higher performing officers over lower performing officers, particularly when transfer opportunities might be scarce. In doing so, tradeoffs occur. The lower performing officers might be substantially higher performing in a new career field. By prioritizing retention instead of competence, the higher performing officers left a branch (likely lowering the aggregate talent in the branch) while raising the talent level in a functional area. If improvements in competence were the goal of the program, a different structure might have prioritized identifying officers who would most benefit from a transfer. Those officers might be lower performing in their current branch, but potentially high performing in a functional area. Such is not the structure of VTIP, either at its outset or in its current execution.

Green Pages: The First Talent Market

As VTIP became established, another new method for managing personnel entered a pilot program. As noted above, OEMA researchers and others advocated for a supervised market to arrange assignments, rather than via the discretion of assignment officers at Human Resources Command. In 2010, experiments started on an early version of such a market.

Known as Green Pages, this forum provided Army Engineer branch officers and the units that would receive them with opportunities to learn more about each other (Office of Economic and Manpower Analysis, 2012). Using a prescribed template, officers could provide more

²³ Functional areas that participated in the four-year CFDB included FA 24 (Information Systems Engineer), FA 29 (Electronic Warfare), FA 30 (Information Operations), FA 40 (Space Operations), FA 46 (Public Affairs), and FA 53 (Information Systems Management).

²⁴ It is important to remember that the CFDB also occurred during the menu of incentives era. An officer intent on transferring to a functional area could opt for the cash option in the menu of incentives and rely on the CFDB for the move to a functional area.

detailed information about their skills, certifications, experiences, and interests; most of the provided information was not typically known to the Army in its personnel repositories. Engineer officers possessed far more professional certifications and traveled far more extensively than the Army knew (pp. 24-25). Units likewise could provide far more detail: regarding the unit itself, about the position, and about the skills and competencies required for the position.

Actual assignments were never executed through Green Pages. It remained an information forum in which both officers and units could learn more about each other and express interest in each other. Assignment officers at Army Human Resources Command continued to determine an officer's next assignment, albeit with insight gained from Green Pages.

The Green Pages pilot program ran from 2010-2012, over which time nineteen iterations were executed. Engineer officers remained the experimental population throughout the program. Having analyzed the results of the pilot program, OEMA researchers reported the following findings:

- Main finding: “Green Pages reveals accurate and granular information that will make true officer talent management possible” (p. 24).
- “Officers and units have heterogeneous preferences” (p. 27).
- “Officers are more responsive to assignment market incentives than (units)” (p. 29)
- “Officer and unit preferences changed after entering the market” (p. 31).
- “Assignment satisfaction increased, in large part because preferences changed” (p. 32).
- “Officers want a greater say in the assignment process & want to use their talents” (p. 35).
- “Assignments officers had more time & information to improve talent matches” (p. 36).

OEMA viewed the pilot program as a success; at this writing, the Green Pages report is featured on the Army Talent Management Task Force webpage. That officers and units changed their preferences upon gaining new information revealed a market-like system, much as consumers and suppliers change their preferences. The high participation of officers, a preference by officers for more involvement in the assignment process, and a general sense of improvement to assignment matches set a foundation for much more ambitious later reforms.

Talent-based Branching

Reforms did not stop with new ways for moving officers between career fields or between jobs. New methods for assigning officers to their initial branch entered testing in 2013. Through what is known as talent-based branching, the Army sought an improved match between officers and branches.

Historically, a cadet's placement in a branch reflected two key points: the cadet's preferences and the cadet's standing on an order-of-merit list (OML). The OML, an ordinal ranking system, was “based upon a weighted average of several quantifiable performance areas (principally military, physical, and academic)” (Colarusso et al., 2010, p. 10). Several challenges emerged

with such a policy: ill fit between an officer and a branch; no input from the branch on who would join; an incentive to maximize college performance through easy academic majors; wasted specialized education; and results that biased against minority officers (Colarusso et al., 2010).

Talent-based branching sought to improve the matching between cadets and branches. To accomplish this, the Army needed better information and better choices. Better information came in two forms. Branches rarely distinguished themselves by the traits and capabilities required for success, thus necessitating analysis that gleans those key differences. Concurrently, cadets appeared to be largely interchangeable based upon very limited dimensions, so greater insight through testing might reveal underlying traits and capabilities unique to the future officer. Armed with better information, cadets might make better decisions on their branch preferences.

Cadets completed a Talent Assessment Battery, which measured “the cognitive and non-cognitive skills, knowledge and behaviors of each relative to their peers and across the branches’ talent demands” (Colarusso et al., 2016, pp. 25-26).²⁵ Feedback came in the form of a written summary and from mentors who helped interpret the results. Additionally, an experienced team of experts weighed the cadet’s entire body of performance and capability, offering non-binding recommendations on future branches. Armed with greater information about themselves and the branches, cadets could make more informed decisions when crafting their branch preferences. Evaluated as a pilot program from 2013-2015, talent-based branching expanded (in various forms) from West Point to other commissioning programs.

Differing Approaches to Achieving Better Matches

VTIP, Green Pages, and talent-based branching each attempted to achieve a better fit between an officer and an Army institution, whether a functional area (VTIP), a job (Green Pages), or an initial branch (talent-based branching). OEMA played an outsized role in two of the programs, from providing the intellectual underpinning to conducting the evaluation. VTIP developed through different channels, pursued different goals, departed from historic norms less dramatically, and avoided a large-scale evaluation.

Nowhere do the differences in the programs emerge more starkly than in the quest to provide better information to all participants in a market. Green Pages and talent-based branching sought to remove informational boundaries between officers and units or branches, respectively. To accomplish this, officers provided more information about themselves and, for talent-based branching, completed a diagnostic battery. At the same time, units and branches developed a better appreciation for the skills and attributes essential to the success in those institutions.

VTIP, conversely, emphasized retention over the degree of fit or improved organizations. Because of its genesis as a retention program, VTIP did not include mechanisms to spur changes

²⁵ Cognitive testing suffered a long, multi-decade decline in the Army. For a complete history of officer testing, see Arthur T. Coumbe, Steven J. Condly, William L. Skimmyhorn (2017).

to how officers or functional areas learn the others’ strengths. Officers provide little amplifying information about themselves to participate and receive little more information from functional areas. If the priority is retention, VTIP’s design suits that purpose. Only those who meet a quality threshold qualify for transfer; such individuals are presumably motivated to move to a new career field. Both traits – a history of strong performance and commitment to the new career field – are desired qualities that the Army might want to retain.

Changes Continue

By the middle of the decade, the Army continued to reform its personnel management system. Sensing the need for specialized cyber experience, a Cyber branch became the 17th Army branch on October 1, 2015 (Army Cyber Command, 2019). Open to new lieutenants, Cyber branch departed from the Army’s traditional approach to officer development. Whereas most officers spent their earliest formative years in the operational force, Cyber officers would serve in specialized units at higher echelons. In time, Cyber branch spurred the creation of a new competitive category – Information Dominance – that it shares with FA 30 (Information Operations). The structure of functional areas across competitive categories is reflected in the Table 2.7.

Table 2.7 Army Functional Areas Since 2012

| Functional area number | Functional area name | Competitive category | Notes |
|------------------------|-------------------------------------|---|---|
| FA 24 | Telecommunications Systems Engineer | Operations Support | Converted to FA 26 – Information Network Engineering |
| FA 26 | Information Network Engineering | Operations Support | Created by merger of FAs 24 and 53 in 2017 |
| FA 29 | Electronic Warfare | Operations Support Information Dominance (2017) | Merged with Cyber branch and converted to military occupational specialty 17B |
| FA 30 | Information Operations | Operations Operations Support (2015) Information Dominance (2017) | |
| FA 34 | Strategic Intelligence | Operations Support | |
| FA 40 | Space Operations | Operations Support | |
| FA 46 | Public Affairs | Operations Operations Support (2014) | |
| FA 48 | FAO | Operations Support | |
| FA 49 | ORSA | Operations Support | |

| | | | |
|-------|----------------------------------|--------------------|--|
| FA 50 | Force Management | Operations Support | |
| FA 51 | Acquisition Corps | Force Sustainment | |
| FA 52 | Nuclear and Counterproliferation | Operations Support | |
| FA 53 | Information Systems Management | Force Sustainment | Converted to FA 26 – Information Network Engineering |
| FA 57 | Simulations Operations | Operations Support | |
| FA 59 | Strategist | Operations Support | |

SOURCE: Department of the Army (DA), DA Pamphlet 600-3 *Commissioned Officer Professional Development and Career Management*, Washington, D.C.: Department of the Army, 2010; Department of the Army, DA Pamphlet 600-3 *Commissioned Officer Professional Development and Career Management*, Washington, D.C.: Department of the Army, 2014; Department of the Army, Army Directive 2017-08 *Competitive Categories for Commissioned Officers and Warrant Officers Serving on the Active Duty List and the Reserve Active Status List*, Washington, D.C.: Department of the Army, 2017.

Tightening fiscal budgets led to substantial reductions in personnel numbers in 2013 and 2014. The Army faced similar challenges before but adopted different approaches. In the 1990s, a mixture of voluntary incentives and involuntary separations reduced the officer population. The voluntary incentives included options such as an incentive pay to leave the Army or an earlier (reduced) retirement. The challenge with such incentives is that they might appeal to those with the best options outside of the military, and there might be strong correlation between the talent in the service and the options outside of the service. To prevent perverse incentives in the 2013/2014 reductions, only involuntary separation boards were used. The boards considered many cohorts of officers, removing the lowest-scoring officers based on the board’s judgment.

Though the Career Satisfaction Program introduced graduate school as one of several available incentives, such an option met at least a temporary demise. Since 2014, no new graduate school contracts have been issued, although contracts that predate 2014 are honored. The other CSP incentives – branch of choice or post of choice – continue unchanged (Career Satisfaction Program, 2019).

In 2016, the Army Talent Management Strategy formalized the new focus on individual-level differences and capabilities. Noting that “(e)ach person’s talent set represents a unique distribution of skills, knowledge, and behaviors,” the strategy foreshadowed the significant changes to officer assignments (p. 7). Departing from the need for standardization across career paths to produce interchangeable personnel, the goal should be to “(o)ptimize the productivity of each Army professional by aligning an individual’s unique talents against organizational talent demands, to the mutual benefit of both the individual and the Army” (p. 11).

By 2019, a new policy dramatically restructured how officers move from one assignment to the next. Drawing upon the values of Green Pages, the Army Talent Alignment Process (ATAP) serves as a market to align available officers with units that have validated vacancies. Expanding

from Green Pages, ATAP promises to seek *1-to-1* matches between officers and units, using an assignment algorithm to recommend solutions that maximize the quantity of matches (Army Talent Management Task Force, 2019). As with its predecessor, ATAP encourages officers to provide expanded information about themselves and units to provide details about the job.

The Road Ahead

Several themes emerge from this discussion that can assist in understanding where future policies might head. First, a trend toward greater differentiation between individuals has changed several personnel systems, but systems that focus on retaining quality officers have to this point avoided those reforms. The way the Army now determines the initial branch and the assignment for officers suggests that future reforms will alter the way in which officers move to functional areas.

Since 1997, the “muddy boots” culture remains, although it might not be as dominant. At the time of the OPMS XXI reforms, officers moved to a functional area at the 10th year of service. In 2006, that movement changed to the 7th year of service. With VTIP, officers can begin serving in a functional area even earlier, although later transfers are also possible. The introduction of Cyber branch also underscores some of the decline in mandatory experience in conventional operational roles.

While officers might start building experience in specialized fields earlier in a career, graduate school attendance remains rare. The suspension of the graduate school option of CSP highlights the mixed signals persistent in the Army’s approach: with an investment comes the risk of future disinvestment.

The Army routinely pursues potentially conflicting goals. It desires to instill a war-fighting ethos in the force, but also develop expertise in fields that are only tangentially related to warfighting. It desires to build expertise in areas particularly amenable to graduate study, but also focuses on operational experience that dissuades graduate school attendance. It seeks to accommodate officer preferences, but uses that accommodation as a tool of retention rather than as a tool to create more effective functional area communities.

In an alternate world, one in which OEMA did not emphasize talent management and thus one in which assignment matching or talent-based branching never occurred, VTIP would be like its current iteration. VTIP borrowed from two programs that pre-dated 2009: the Career Field Designation Board and the menu of incentives. It added flexibility to the application period, removed the mandatory participation component, and initially included a service obligation. Because VTIP did not emerge with a policy history that prioritized the importance of matching officers to the career field that best suits them, neither officers nor functional areas necessarily saw utility in exploring ways to achieve better matches.

Looking ahead, VTIP will probably be reformed soon, bringing it in line with other talent-matching initiatives. I expect a system that closely mirrors talent-based branching, in which a

combination of officer testing and mentorship helps officers to make more informed decisions. At the same time, functional area proponents will likely be forced to provide more detailed information about the traits and skills necessary for success in their communities, comparable to the investments branches made to achieve better matches.

A waste of some human capital, and the accompanying atrophy of technical or specialized skills, will probably still occur. Officers whose background and education suggests they will be successful in a functional area will probably still serve in a branch to start their careers. Talent-based branching should help such officers find the best possible match among branches, but the officer would be better served in a functional area. While the Army has shown a willingness to align technically skilled officers to Cyber branch to start a career, enthusiasm for developing and exploiting technical expertise among the most junior officers will abut resistance for the foreseeable future.

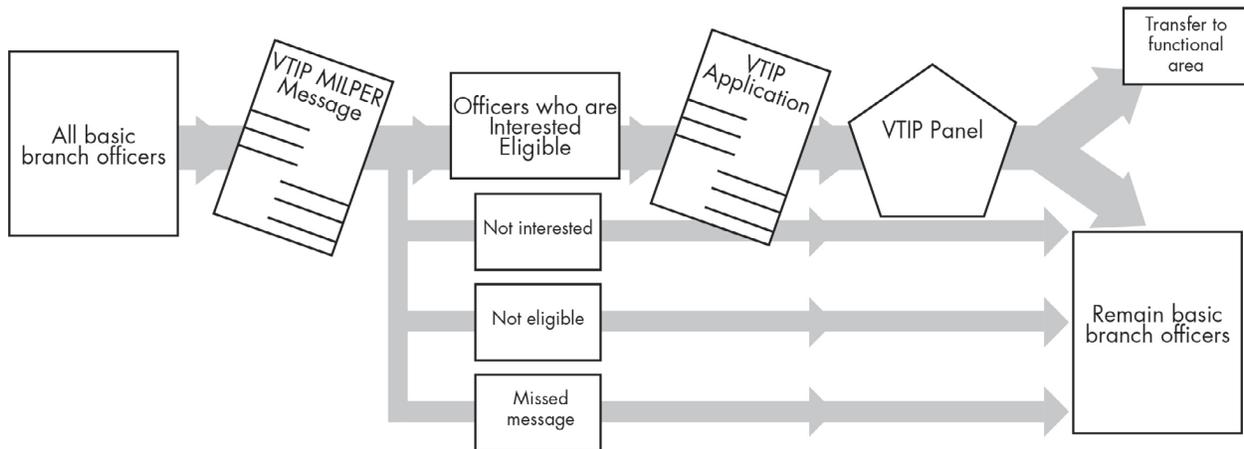
3. The VTIP Labor Market

When VTIP finally replaced the CFD board in 2012, the Army fully entered a new phase in allocating officers to mid-career occupational specialties. An officer could change career fields if three conditions were met: (1) the officer was eligible to apply for a new career field; (2) the officer applied to change career fields; and (3) the VTIP panel approved the officer's request. The second condition rested solely with individual officers, removing the potentially involuntary component present in the career field designation process that predated VTIP. The Army entered a phase where an officer's preference for an occupational specialty shaped, but did not guarantee the ultimate career field in which that officer worked.

The Army maintained two substantial mechanisms that constrained an officer's ability to switch career fields. The Army achieved its optimal mix of career fields by opening and closing career fields to new entry, as well as allowing or prohibiting departures from a current career field. These levers were used based on the year in which an officer received a commission. If an officer received a commission in 2004, the officer would be defined as a member of cohort 2004, separate from officers who entered the service in 2003 or 2005. With this management system, the Army could open or close a career field to new entrants based on the number of officers already in that cohort for a career field. Similarly, an officer could be allowed or prohibited from leaving his/her current career field based on the manpower needs of that career field. Thus, an officer would be eligible to switch career fields if the desired career field were open for applications for that officer's cohort and the officer's existing career field allowed departures.

If an officer is both eligible and interested in joining a new career field, the Army maintained an additional mechanism for controlling the movement between career fields: final approval occurred through the decisions of a panel. In Figure 3.1 below, I illustrate the lifecycle of a single VTIP panel.

Figure 3.1 VTIP Panel Lifecycle



The VTIP Military Personnel Message

The VTIP announcement originates with HRC, released to the entire Army as a military personnel (Milper) message. Typically, HRC releases a VTIP Milper message every six months, thus holding a VTIP panel twice a year. A VTIP Milper message contains three significant sections. The first section describes the timeline for application and broad eligibility. This broad eligibility includes who might be excluded from consideration in VTIP (judge advocates, Army medical personnel, and chaplains, typically), who might be ineligible because of participation in other Army programs, and who might be ineligible because of significant blemishes in their performance record.

The second section of a VTIP Milper message contains the in and out eligibility by career field and by year group, displayed as a matrix. Among the factors the Army regarding career field transfers, the first listed in the applicable regulation is “branch alignment by year group in both the officer’s current and requested branch” (Army Regulation 614-100, 2019, p. 11). Data from the Army G-1 (Personnel) helps create a model for every career field, by year group, in the Army. The model accounts for a running three-year average of officers serving in branch immaterial billets (positions that can be filled by an officer from two or more branches) and officers in military schooling, crediting each career field for officers in those positions and adding that total to the number of authorized positions for the career field. This provides the baseline of how many officers a career field needs, by career field and by branch. HRC analysts then compare the baseline to the actual inventory of officers, establishing by career field where there are too many or too few officers. A career field with too many officers in a given year group will be listed as an “out” in the VTIP matrix, so officers with this career field and of that year group may apply to transfer to a new career field. In the same way, a career field with too few officers will be listed as an “in” and can receive new officers through VTIP. Any given

officer must thus meet two conditions: for that officer's year group, the current branch must be listed as an "out" and the desired functional area must be listed as an "in" (Interview 42, 2020).²⁶

The third section of a VTIP Milper message lists the entry requirements for each functional area. Assignment officers for each functional area – officers at HRC who provide career management support – review this section for their functional area and make changes prior to publication (Interview 13, 2020). These entry requirements vary widely, with differing levels of education, military experience, and skills and experiences. In some cases, the entry requirements contain fixed hiring standards, essentially a standard that an applicant must meet to be eligible. In other cases, the entry requirements are screening devices. Some entry requirements can serve as both hiring standards (e.g. must meet a minimum score on the Graduate Record Examination [GRE]) and screening devices (e.g. a higher score is better).

Preparation for the VTIP Panel

Once the VTIP Milper message is published, interested and eligible officers apply to the Leader Development Division (LDD) at HRC. LDD collects the applications, reviews for completeness, and distributes the applications to assignment officers in both the current career field and the desired future career field. Assignment officers in both the current and future career field – often described as the "losing" and "gaining" career field – will submit comments on the application. The assignment officer for the current career field will check the eligibility of the applicant and might make notes about the promotion potential of the applicant. The assignment officer for the desired future career field will review application material and assess the promotion potential of the applicant.

Some career fields require extensive application material, such as GRE scores, undergraduate transcripts, special tests, and questionnaires. The assignment officer for these functional areas will review that material. In some cases, as with FA 48 (FAO), the assignment officer might discuss the material with the functional area's proponent office. If an applicant fails to meet the qualifying standard on special tests (such as a writing test), the VTIP application might be no longer considered (Interview 13, 2020).²⁷

There is no proscribed format for assignment officers to communicate the functional area's recommendations to the VTIP panel. Some functional areas will rank order all applicants, from most desired to least desired. Other functional areas will use the same rank order system, but by the year group of the officer. Still others will use a "yes/no" rating.

²⁶ I interviewed two subject matter experts on the VTIP program, referred to in this dissertation as Interview 13 and Interview 42.

²⁷ Interview 13 noted that FA 59 (Strategist) uses this approach.

The VTIP Panel

LDD will collect the comments from the current and desired future career field assignment officers and will include that information in the VTIP panel. The panel is typically five to six senior officers and civilians at HRC; in a tour at HRC, panel members will likely serve on many VTIP panels. The panel will review the comments from the assignment officers, the performance record of applicants, and the application memorandum from the applicant. Additional application material, such as transcripts or test results, will typically not go before the panel, but will inform the comments from the assignment officers (Interview 13, 2020; Army Human Resources Command, 2019).

The VTIP panel members individually award a score ranging from two to six for each applicant.²⁸ Army Regulation 614-100 (2019, p. 11) establishes the following factors for considering transfers between career fields:

1. “Branch alignment by year group in both the officer’s current and requested branch.
2. Civilian and military education.
3. Overall manner of performance and career potential within requested branch.
4. Special qualifications as appropriate.
5. Demonstrated aptitude for branch-specific training and assignments.
6. Needs of the Army.”²⁹

A score of four is considered the threshold for promotion to major and the threshold for a transfer approval. For a five-member panel, the quality threshold for transfer would be a score of 20, although scores just below that point might cause reconsideration. The willingness of the panel to approve the marginal case depends in part on force structure decisions by the larger Army, with a growing Army more conducive to the transfer of borderline cases (Interview 13, 2020).

In their consideration of applications, the VTIP panel will consider the applications by gaining career field, rather than in some other order (such as by seniority, losing branch, or alphabetical). For instance, the panel will consider all applicants for FA 48 before moving on to the applications for FA 49 (Army Human Resources Command, 2019).

The panel will also consider so-called exception to policy (ETP) applications to VTIP. A VTIP Milper typically allows officers who do not meet standard branch/year group eligibility to apply for transfer. The intent behind the ETP is to provide an opportunity to transfer for the officer who is “extremely well suited for the desired branch but falls outside the constraints of

²⁸ This scoring system, the Army Selection Board System, is also used in centralized Army promotion boards. VTIP panel members can award between a two and a six as a score, with pluses and minuses allowed. A score of 2+ is higher than a 3-, which in turn is higher than a 3. The highest possible individual score is a 6+.

²⁹ In a PowerPoint presentation that describes the VTIP program, HRC used a list of factors that omitted the first and sixth point, which are the manpower strength considerations. Those considerations enter into VTIP at multiple points, however. Career field strength shapes broad eligibility for transfer and is again reviewed prior to the approval of the VTIP panel results. (Army Human Resources Command, 2019).

the MILPER” (Army Human Resources Command, 2019, slide 7). Such ETPs make up a significant portion of the VTIP application population and have a high approval rate (Interview 13, 2020; Interview 42, 2020).³⁰

Once the panel has made its recommendation, analysts in LDD will evaluate if the proposed transfers “meet force structure requirements in both gaining and losing branches” (Army Human Resources Command, 2019). Plugging the proposed transfers into the same model that helped generate the in/out matrix, analysts can validate whether the proposed transfers would leave any career field undesirably low. The director of the Officer Personnel Management Division is the final approval authority for VTIP transfers.

What I have described to this point is an internal labor market, a rules-based system for allocating the workforce under conditions that are not immediately reflective of external labor factors (Doeringer and Piore, 1971). The practical, cultural, and (until recently) statutory limitations on bringing new officers into the workforce at the mid- or senior-grade levels – a process known as lateral entry – created the need for a rules-based system for meeting manpower needs. Consistent with most internal labor markets, the price of labor neither floats freely nor responds quickly to broader changes in the market. VTIP is such a system.

In an application-based system like VTIP, tradeoffs should emerge between the breadth of appeal for a functional area and the approval rate for transfers. One cannot ponder a functional area’s appeal or its approval rate for very long before thinking of the market for college admissions. The metaphor is useful. A college with many applicants tends to have a lower acceptance rate compared to a college with fewer applicants, especially when accounting for the size of the college. 20,000 applicants to the Ohio State University is not the same as 20,000 applicants to Eckerd College. The same holds true in VTIP, but unlike in college an officer can apply for transfer to only one functional area.

The functional areas vary substantially in size, meaning the authorized number of personnel. The Army documents all authorized positions for every occupational specialty, including all personnel (officers, enlisted personnel, and civilian employees). Using these manning documents, we can approximate the authorized size of a career field, ranging from over 1,300 in the FA 51 (Acquisition) to about 130 in FA 34 (Strategic Intelligence).

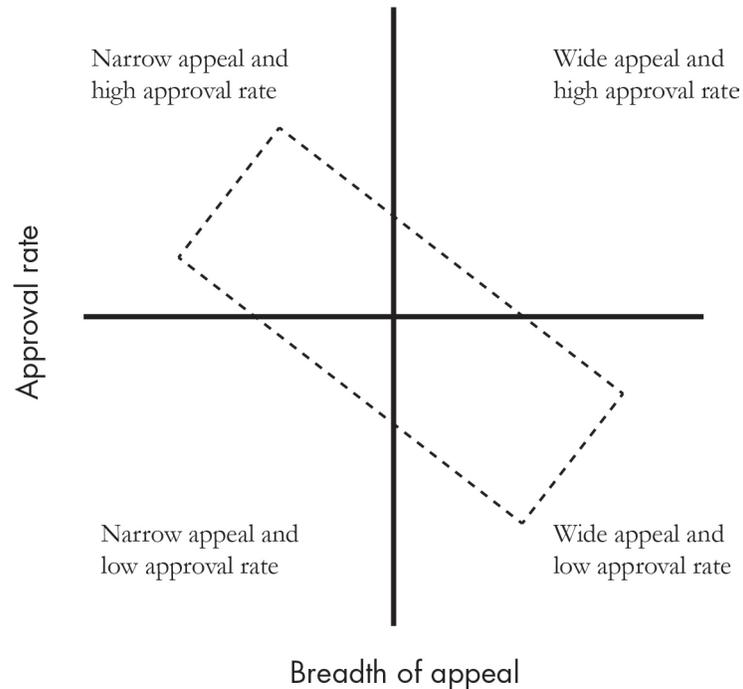
Theoretically, consider the possible combinations between the breadth of appeal and the approval rate, using dichotomous values of *wide* and *narrow* or *high* and *low*, and shown in Figure 3.2:

- Wide appeal and a high approval rate
- Wide appeal and a low approval rate
- Narrow appeal and a low approval rate

³⁰ Interview 13 noted that the robust usage of ETPs undermines the force-balancing nature of VTIP. “People do not understand that the primary purpose of VTIP is a force-balancing tool that aligns officers to requirements, not a way to fulfill officer desires.”

- Narrow appeal and a high approval rate.

Figure 3.2 Possible Combinations of Appeal and Approval Rate



Wide appeal and a high approval rate could indicate many scenarios. The career field might be projected to grow in the future. The career field might also have unusually high attrition, requiring greater throughput than other career fields. The career field could have an unusual number of officers who decline an approved request to transfer, but that seems unlikely.

Narrow appeal and a low approval rate might indicate a career field in which many applicants do not meet the quality threshold necessary for an approved transfer. Alternatively, it might also indicate a career field that will shrink in the future or a career field with higher than normal retention over time.

Most career fields should be along an axis representing the appeal/approval ratio, represented by the dotted box in Figure 3.2. Wide appeal would yield a lower approval rate, and vice versa. But in some cases, as we will see, career fields attractive to a narrow subset of officers could see a rise in both the approval rate *and* the supply of applications. In those circumstances, the career field implemented changes that encouraged more applications from officers likely to be approved for transfer.

Labeling a career field as high popularity because it has wide appeal is intuitive, but labeling its inverse as low popularity might not be appropriate. A career field with narrow appeal and a

high transfer approval rate might reflect high popularity in the narrow subset of officers interested and qualified for transfer.

Breadth of Appeal

VTIP, at its essence, is a program that decides which applications to approve and which decline. To move forward in the discussion, we require a method to compare the appeal of a functional area in relation to its peers and over time. This is less a straight-forward task than it might initially appear, especially as I attempt to account for peculiarities between functional areas. In this section, I present new measures of the labor market strength for each functional area.

The naïve approach to appeal would simply count the number of applications and then compare functional areas over time. The simplicity of this approach is its primary attraction, but with that simplicity comes severe limitations. Large functional areas, such as FA 51 (Acquisition) and FA 48 (FAO), need many applicants; they are an order of magnitude larger than some of the smaller functional areas. If I do not take the size of the career field into account, I risk missing important implications: the functional area might receive a lot of applications, but it might not be sufficient to its need. Imagine I told you, just as an example, that two functional areas each received 200 applications. Armed with that knowledge, do we know much? The size of the functional area – essentially its manpower needs – puts the application data in context. Ohio State University will receive many more applications than Eckerd College, but to compare the size of the applicant pool between such divergent institutions requires taking the size of the college into account. So it is also with functional areas.

A second possible approach would compare the ratio of the career field size to the application volume. This approach solves the challenge of accounting for variations in career field size and thus makes it an attractive option for comparison. Large and small functional areas can thus be compared on an equal basis, as long as there are no other factors that constrain the opportunity to apply. In fact, there are such constraints. Every VTIP Milper message adjusts eligibility, based on an officer's year group, for each functional area. An officer and her year group peers might be eligible to apply for one panel, only to be ineligible to apply the next. These changes, from panel to panel, adjust the population of potential applicants.³¹ As an illustration, consider two hypothetical career fields (CF), labeled as CF0 and CF1. For simplicity, they are the same size. Each received 100 applications in a VTIP panel. However, CF0 could receive applications from just two year groups, while CF1 could receive applications

³¹ A VTIP Milper message includes a matrix with career fields on one axis and cohort year groups on the other axis. Typically, eleven cohort year groups were listed. The cells of the matrix will be labeled as In/Out/Closed. 'In' specifies that an officer in a given year group could join a given functional area. By counting the number of 'In' annotations, we can develop a rough estimate for the opportunity to join a career field in a given VTIP application window. 'Out' specifies that an officer in a given year group could leave her current career field, while 'Closed' specifies that an officer can neither leave nor join a career field at that time.

from ten. Even though they received the same number of applications and are the same size, the divergent application volume per window of opportunity obscures how different the appeal of that functional area is.

Hopefully, this preamble established that to understand the breadth of appeal for a functional area, a metric must accomplish three things. First, it must incorporate data on how many officers applied to the functional area. Second, the metric must account for the size of the career field, because larger functional areas require far more applicants than smaller functional areas. Finally, the metric must also consider the opportunity to apply, as functional areas differ in how frequently a given officer might be eligible to apply. I label this metric as *gamma* (γ) and use three data sources to construct it, as shown in Table 3.1.

Table 3.1 Gamma (γ) – Breadth of Appeal

| Data | VTIP Applicants | VTIP Opportunities | Career Field Authorizations |
|-------------|---|--|---|
| Source | HRC | HRC | Force Management System Website (FMSWeb) |
| Timeframe | 2014-2019 | 2014-2019 | Average over 2014-2019 |
| Description | The total number of applicants for a functional area for all VTIP panels within the timeframe | The total number of opportunities to join a functional area for all VTIP panels within the timeframe | The average total number of authorized positions in the career field within the timeframe |

In constructing *gamma*, it would be intuitive for larger values to reflect a wider appeal. To facilitate this, I use the negative value for *gamma* as reflected in Equation (1) below.

$$\gamma = (-) \frac{\text{Authorizations}}{\left(\frac{\text{Applicants}}{\text{Opportunities}}\right)} \quad (1)$$

where authorizations are the average number of functional area authorizations between the years 2014-2019, applicants are the total number of officers who applied to a given functional area during the years 2014-2019, and opportunities are the total number of VTIP windows that were open during the same time frame.

For example, consider three functional areas of roughly the same size: FA 24 (Telecom) has 290 *authorizations*, FA 30 (Information Operations) has 274, and FA 57 (Simulations) has 296. The first two had similar *gammas*, negative 122 and 154 respectively, because Telecoms had roughly half the *opportunities* as Information Ops and also half the *applicants*. Simulations also had fewer opportunities than Information Operations, but it had three times as many applicants, yielding a *gamma* of negative 62. Table 3.2 is organized by descending values for *gamma*; very

negative numbers (<-100) indicate career fields for which relatively fewer officers applied, given the size of the career field and the opportunities to apply.

Table 3.2 Gamma (γ) – Breadth of Appeal

| Career Field | VTIP Applicants (2014-2019) | VTIP Opportunities (2014-2019) | Career Field Authorizations (Average over 2014-2019) | Gamma | Gamma in standard deviations from the mean |
|---|-----------------------------|--------------------------------|--|-------|--|
| FA 53 ^a Information Systems Management | 179 | 49 | 591 | -162 | -1.9 |
| FA 30 Information Operations | 178 | 100 | 274 | -154 | -1.7 |
| FA 24 ^a Telecommunications Systems Engineer | 109 | 46 | 290 | -122 | -1.0 |
| FA 26 ^b Information Network Engineering | 300 | 52 | 643 | -112 | -0.7 |
| FA 46 Public Affairs | 241 | 76 | 325 | -102 | -0.5 |
| FA 59 Strategist | 232 | 63 | 337 | -92 | -0.3 |
| FA 52 Nuclear and Counterproliferation | 215 | 96 | 200 | -89 | -0.2 |
| FA 49 ORSA | 461 | 74 | 450 | -72 | 0.2 |
| FA 57 Simulations Operations | 308 | 64 | 296 | -62 | 0.4 |
| FA 29 ^c Electronic Warfare | 162 | 69 | 141 | -60 | 0.5 |
| FA 51 Acquisition Corps | 1261 | 45 | 1481 | -53 | 0.6 |
| FA 50 Force Management | 332 | 60 | 215 | -39 | 1.0 |
| FA 48 FAO | 856 | 53 | 603 | -37 | 1.0 |
| FA 40 Space Operations | 528 | 54 | 252 | -26 | 1.3 |
| FA 34 Strategic Intelligence | 251 | 39 | 133 | -21 | 1.4 |

NOTE:

^a FA 24 and FA 53 merged into FA 26 in 2017. Data reflects VTIP results through 1st Quarter Fiscal Year 2017.

^b FA 26 started after the 1st Quarter Fiscal Year 2017 VTIP panel.

^c FA 29 joined Cyber Branch in 2017 and became AOC 17B in 2019, at which point accessions occurred through Cyber Branch. As a result, data reflects one less VTIP panel than other functional areas.

SOURCE: Author’s calculations based on data from U.S. Army Human Resources Command; VTIP panel announcement messages 2014-2019; U.S. Army Directorate of Force Management, Force Management System Website (FMSWeb)

Career fields vary widely in how many applicants seize available opportunities to apply through VTIP. The metric *gamma* accounts for both the action of applying when eligible and normalizes the trend across career fields of varying size. Numbers closer to zero show the opposite result: relatively more officers applied for transfer through VTIP. For clarity, *gamma* does not address happiness or satisfaction, whether of members already in that career field or of the perceptions of those outside the career field.

Approval Rate of VTIP Applications

To complement the analysis of a functional area’s appeal, let us now turn to another measure: the percentage of officers who applied to a new career field and were approved for transfer by the VTIP panel. I evaluated this approval rate across VTIP panels from 2014-2019³² for each functional area, with results reflected in Table 3.3. I defined this measure as a percentage, theta (θ), using the following formula:

$$\theta = \frac{\text{approvals}}{\text{applicants}} \quad (2)$$

where approvals equal the total number of approved transfers to a given functional area during the years 2014-2019 and applicants equal to the total number of officers who applied to a given functional area during the same period.

Table 3.3 Theta (θ) – VTIP Approval Rate

| Career Field | Applicants (2014-2019) | Approvals (2014-2019) | Theta (θ) | Theta in standard deviations from the mean |
|--|---------------------------|--------------------------|--------------------|--|
| FA 24 ^a Telecommunications Systems Engineer | 109 | 66 | 61% | 1.21 |
| FA 29 ^b Electronic Warfare | 162 | 94 | 58% | 0.89 |
| FA 30 Information Operations | 191 | 89 | 47% | -0.58 |
| FA 34 Strategic Intelligence | 251 | 135 | 54% | 0.34 |

³² I selected 2014-2019 as the data range to align gamma and theta over similar time periods. I have VTIP application and acceptance data from 2013-2019, but lack data on VTIP windows for 2013.

| | | | | |
|--|-------|-----|-----|-------|
| FA 40 Space Operations | 528 | 225 | 43% | -1.10 |
| FA 46 Public Affairs | 241 | 91 | 38% | -1.72 |
| FA 48 FAO | 856 | 399 | 47% | -0.58 |
| FA 49 ORSA | 461 | 269 | 58% | 0.93 |
| FA 50 Force Management | 332 | 161 | 48% | -0.34 |
| FA 52 Nuclear and Counterproliferation | 215 | 121 | 56% | 0.66 |
| FA 53 ^a Information Systems Management | 179 | 79 | 44% | -0.90 |
| FA 57 Simulations Operations | 308 | 133 | 43% | -1.02 |
| FA 59 Strategist | 232 | 145 | 63% | 1.46 |
| FA 51 Acquisition Corps | 1,261 | 582 | 46% | -0.64 |
| FA 26 ^c Information Network Engineering | 300 | 186 | 62% | 1.40 |

NOTE:

^a FA 24 and FA 53 merged into FA 26 in 2017. Data reflects VTIP results through 1st Quarter Fiscal Year 2017.

^b FA 29 joined Cyber Branch in 2017 and became AOC 17B in 2019, at which point accessions occurred through Cyber Branch. As a result, data reflects one less VTIP panel than other functional areas.

^c FA 26 started after the 1st Quarter Fiscal Year 2017 VTIP panel.

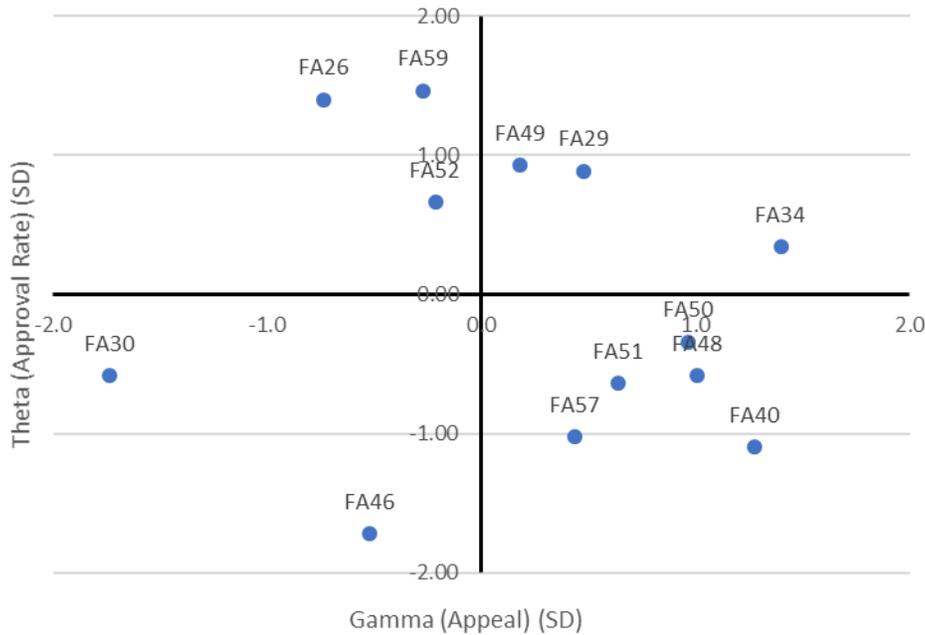
SOURCE: Author's calculations based on data from U.S. Army Human Resources Command

When considering the relationship between applicants and approvals, one could draw the same conclusions as college acceptance rates play in popular culture: highly selective institutions are different than less selective institutions. Highly selective colleges, or in our case career fields, are attractive to far more individuals than there are slots to go around. Ultimately, however, this *theta* measure of selectivity is limited in isolation. It tells us nothing of the individual-level qualities underlying an application. A relatively high selection rate might indicate a career field forced to accept most applicants to meet its manpower needs, but it might also indicate a high degree of effective self-selection. Only those who know themselves to be a good match might apply. Similarly, a low acceptance rate might indicate an over-supply of qualified and quality applicants, but it might also signify less certainty among applicants about the likelihood of selection.

Combining Theta and Gamma

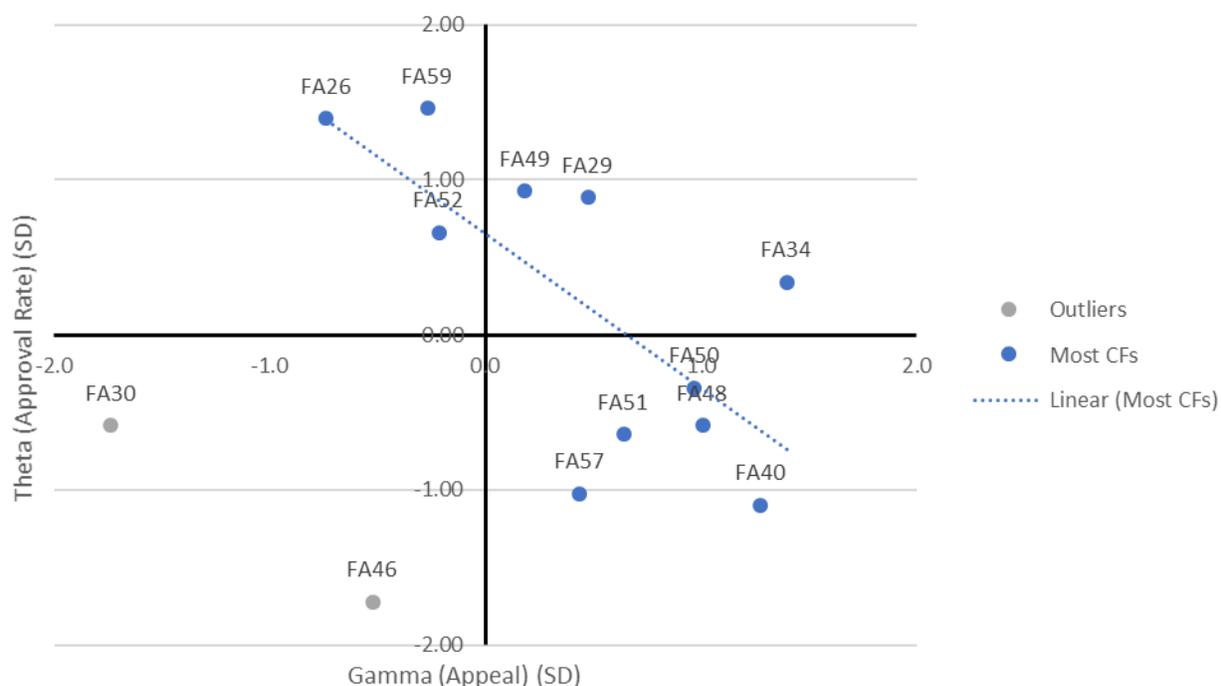
Theta and *gamma* should show a negative correlation, indicating that as the appeal of a functional area (i.e. *gamma*) increases, the approval rate (i.e. *theta*) should fall. Figure 3.3 reflects the relationship between the two measures, plotted as standard deviations from the mean for clarity.

Figure 3.3 Gamma and Theta Scatterplot



Initially, it might appear that there is no relationship between *gamma* and *theta*: the correlation coefficient is -0.15. But notice that two functional areas fall into the lower left quadrant. To exist in that quadrant means that the functional area receives fewer applications than average and sees fewer of them approved through VTIP than average. As I will explain in a later section, those two functional areas differ from other functional areas in several ways: more assignments in the operational Army; a lower promotion rate on average; a decline in the number of authorized positions; a change of competitive category; and fewer opportunities to attend graduate school. Removing FA 30 and FA 46 from consideration shows a clear relationship between *gamma* and *theta*, as shown in Figure 3.4.

Figure 3.4 Gamma and Theta Scatterplot Without FA 30 and FA 46



Without FA 30 and FA 46, the relationship between *theta* and *gamma* becomes apparent. Some functional areas experience relatively fewer applicants and have correspondingly higher approval rates. Others, with relatively many more applicants, have much lower approval rates. The correlation coefficient between the two measures, after ignoring FA 30 and FA 46, is -0.71.

How should one interpret this chart? One could say that those combining a high value for *theta* and a low value for *gamma* are the unpopular functional areas, while those in the inverse category are popular. Such a naïve interpretation is plausible, but probably incorrect. Instead, one could view the high *theta* / low *gamma* functional areas as potentially more appealing to a narrow cohort of qualified applicants, while the low *theta* / high *gamma* functional areas have broader appeal. As I will show in Chapter 4, the behavior of the functional areas is consistent with that characterization.

Of course, in explaining the relationship, I have ignored the two functional areas that do not fit well. For those functional areas, the preferences of officers and the talent distributions³³ of potential applicants interact in such a way that the functional areas become stuck, lacking access

³³ By talent, I refer to “an individual’s skills and abilities and what the person is capable of doing or contributing to the organization” (Silzer and Dowell, 2010, p. 13). This definition is consistent with the Army’s definition of talent as “the unique intersection of skills, knowledge, and behaviors in every person” (Army Combined Arms Center, 2015, p. iv). Talent is the all-encompassing term for acquired and inherited abilities and skills, often captured in literature as knowledge, skills, and abilities. Talent in this context is uniquely distributed to individuals, but when aggregated forms a distribution across the population. The Army uses the term talent distribution in a similar context (McConville and Wada, 2016, p. 7).

to the highest quality applicants and unable to raise their approval rates. I will expand this concept in the next section.

Preferences, Quality Thresholds, and VTIP

Officers might differ in how they view functional areas. Otherwise similar officers (e.g. similar academic background and similar military performance and experience) might prefer one functional area to another. If functional areas are very similar, we might expect that the officers drawn to those functional areas to be from a shared talent distribution. But in other cases, functional areas – especially when quite dissimilar – might draw officers from different talent distributions, suggesting that the feeder stock of potential officers differs.

As a process, a VTIP panel considers the applications from interested officers and approves those above a cut-line, or quality threshold, if space is available in the desired functional area. The quality threshold determines whether an officer might transfer, while a maximum quota caps the number of officers who might transfer. Two broad categories of information will influence where the quality threshold lies for each functional area: military performance and functional area qualifications. Since qualifications will differ between functional areas, the quality threshold will vary from one functional area to another. An officer well-suited to be a FAO (i.e. speaks a foreign language with a background in regional studies) might not be appropriate as an ORSA (where mathematical ability is important).

Unlike functional area-specific qualifications, the military performance component of the quality threshold will be much more homogenous. The minimum military performance necessary, as reflected in performance evaluations, for VTIP approval is broadly consistent across multiple functional areas. This will hold true for applicants of similar seniority. Officers within one or two years of promotion consideration are judged by a standard that will likely be higher than officers who are three or four years from promotion consideration.

In an absolute sense, most functional areas have a different quality threshold because each functional area has its own entry requirements and desired qualifications. But at the same time, all functional areas – and the VTIP panel – judge military performance in similar terms for officers of similar seniority. If we assume that officers applying for a functional area satisfy functional area-specific entry requirements to the same degree, we can see how changes in preferences, military performance, and the quality threshold influence who will be approved to join a functional area.

When Drawn from a Shared Talent Distribution

Given this simplified view of VTIP, let us turn to a model to see the interaction of officer preferences and quality thresholds to understand the implications for functional areas, when officers are drawn from a shared talent distribution. Key features of the model include:

- 100 officers, with normally distributed observed productivity (mean = 10; standard deviation = 2)
- Officers will apply to one of two functional areas (labeled Career Field 0 (CF0) and Career Field 1 (CF1)), with that decision based on randomly assigned individual preference
- Each functional area can receive up to 25 officers through this VTIP panel
- A VTIP panel will rank order officers for each functional area based on their observed productivity and approve the transfer of those who exceed a quality threshold *and* are in the top 25 for the functional area
- Officers will also have a level of productivity in the new functional area that is correlated (at 0.5 in the model) with the observed productivity.

The model shows how the preferences of officers influence functional areas in several ways: in whether the functional area fills all its slots; the approval rate in the VTIP panel; and the average level of productivity expected from those who join the functional area.

Let us start with a situation in which 50 percent of officers prefer CF0 and the other half prefer CF1. In our model, an officer’s preference is not correlated with their productivity. With this equal split, both CF0 and CF1 will receive the identical number of officers with the same approval rate and same future productivity level. Whether CF0 and CF1 receive all 25 officers depends on the quality threshold used by the VTIP panel. When the quality threshold is set at the mean of observed productivity, CF0 and CF1 would each receive 23 officers as shown below.

Table 3.4 Notional VTIP Board with Equal Popularity

| Career Field | Quality Threshold | Officer preferences across population | Approved transfers (no more than 25) | Approval rate | Future productivity above population mean (in standard deviations) |
|--------------|-------------------|---------------------------------------|--------------------------------------|---------------|--|
| CF0 | 10 | .5 | 23 | 47% | 0.4 |
| CF1 | 10 | .5 | 23 | 47% | 0.4 |

The above table shows that when an equal proportion of the population prefers either CF0 or CF1, the outcomes are the same. If the preferences are the same, to reach a goal of 25 officers per functional area would require lowering the quality threshold. Since we know, from the analysis at the start of this chapter, that some functional areas are more popular than others, let us consider a case where 55% of officers prefer CF0 to CF1.

Table 3.5 Notional VTIP Board with Small Difference in Popularity

| Career Field | Quality Threshold | Officer preferences across population | Approved transfers (no more than 25) | Approval rate | Future productivity above population mean (in standard deviations) |
|--------------|-------------------|---------------------------------------|--------------------------------------|---------------|--|
| CF0 | 10 | .55 | 24 | 45% | 0.4 |
| CF1 | 10 | .45 | 22 | 48% | 0.4 |
| CF0 | 9 | .55 | 25 | 46% | 0.4 |
| CF1 | 9 | .45 | 24 | 56% | 0.3 |

When 55 percent of officers prefer CF0 and the quality threshold is the population mean for observed productivity, CF0 receives more officers (24) than CF1 (22) and has a lower approval rate. The Army could elect to lower the quality threshold, perhaps by ½ of a standard deviation, in effect making it easier for officers to transfer to CF1. If that were to happen, CF0 would receive 25 officers and CF1 would receive 24 now. A small quality difference emerges between the functional areas, equal to about .1 standard deviation.

Of course, CF0 might be significantly more popular than CF1. If 67 percent of officers prefer CF0, we start to see dramatic divergences between CF0 and CF1.

Table 3.6 Notional VTIP Board with Large Difference in Popularity

| Career Field | Quality Threshold | Officer preferences across population | Approved transfers (no more than 25) | Approval rate | Future productivity above population mean (in standard deviations) |
|--------------|-------------------|---------------------------------------|--------------------------------------|---------------|--|
| CF0 | 10 | .67 | 25 | 38% | 0.5 |
| CF1 | 10 | .33 | 17 | 50% | 0.4 |
| CF0 | 9 | .67 | 25 | 38% | 0.5 |
| CF1 | 9 | .33 | 22 | 67% | 0.3 |
| CF0 | 8 | .67 | 25 | 38% | 0.5 |
| CF1 | 8 | .33 | 24 | 74% | 0.2 |

CF1 faces a challenge when it is relatively unpopular. It can maintain its quality in comparison to CF0 by using a high quality threshold, but in response will access far fewer officers. To approach the desired number of officers, the Army must use a lower quality threshold; in turn, CF0 and CF1 diverge in quality.

What might we take away from this exercise? For one, popularity matters. Popular functional areas, such as CF0 in our example, can maintain their desired quality and their desired accessions. Relatively unpopular career fields, like CF1, must trade between quality and accessions, unless they can expand their popularity. However, mechanisms that are difficult to change are correlated with popularity, as we will see in the next section.

When Drawn from Different Talent Distributions

As examined in the previous section, functional areas might draw officers from a common talent distribution, suggesting that those functional areas might appeal to similar officers. The preferences of officers drive the differences in acceptance rates, subject to the constraints of the quality threshold. However, officers might be drawn from different talent distributions. Even if for all officers the talent distribution is normal with some mean and standard deviation, sub-populations of officers interested in a functional area might have a different mean and standard deviation. In some cases, the talent level might be higher than the population, but in other cases it might be lower. I will now turn the same model loose against this scenario, with the following parameters.

- 50 officers, drawn from a talent distribution with a mean talent level greater than the population mean and interested in CF2 and a standard deviation of two
- 50 officers, drawn from a talent distribution with a mean talent level lower than the population mean and interested in CF3
- Each functional area can receive up to 25 officers through this VTIP panel
- A VTIP panel will rank order officers for each functional area based on their observed productivity and approve the transfer of those who exceed a quality threshold *and* are in the top 25 for the functional area
- Officers will also have a level of productivity in the new functional area that is correlated (at 0.5 in the model) with the observed productivity.

Using this model, I will also investigate the potential longer-term effects on promotion outcomes. I will set an arbitrary promotion threshold at the 25th percentile for the entire population, which means that only the top 75 percent of officers will be promoted to the next higher grade.

Small differences between the two populations, such as when the mean for the population interested in CF2 is 10.5 and the mean for the population CF3 is 9.5, yield divergent outcomes depending on the restrictiveness of the quality threshold.

Table 3.7 Notional VTIP Board with Small Difference in Talent

| Career Field | Mean talent level for those who apply | Quality Threshold | Approved transfers (no more than 25) | Met quality threshold but exceed quota | Approval rate | Expected to fail of selection at next promotion board |
|---------------------|--|--------------------------|---|---|----------------------|--|
| CF2 | 10.5 | 11 | 20 | 0 | 40% | 3.5 |
| CF3 | 9.5 | 11 | 11 | 0 | 23% | 3.9 |
| CF2 | 10.5 | 10 | 25 | 5 | 50% | 3.8 |
| CF3 | 9.5 | 10 | 20 | 0 | 40% | 7.0 |
| CF2 | 10.5 | 9 | 25 | 13 | 50% | 3.2 |
| CF3 | 9.5 | 9 | 25 | 5 | 50% | 8.8 |
| CF2 | 10.5 | 8 | 25 | 20 | 50% | 3.2 |
| CF3 | 9.5 | 8 | 25 | 13 | 50% | 8.8 |

When the quality threshold is high, CF2 will receive more officers through VTIP than CF3. The expected promotion rate will be similar, as both functional areas receive officers who are quite competitive for promotion. As the quality threshold lowers, each functional area receives the maximum quantity of officers. The trade-off occurs with long-term career viability, as about twice the officers in CF3 might fail of selection with the next promotion board.

If the two talent distributions diverge more significantly, more extreme outcomes become likely. Let us establish that CF4 might draw from a population of officers in which the mean talent is 11, while CF5 might draw from a population of officers with a mean talent of 9, as shown in Table 3.8.

Table 3.8 Notional VTIP Board with Large Difference in Talent

| Career Field | Mean talent level for those who apply | Quality Threshold | Approved transfers (no more than 25) | Met quality threshold but exceed quota | Approval rate | Expected to fail of selection at next promotion board |
|---------------------|--|--------------------------|---|---|----------------------|--|
| CF4 | 11 | 11 | 23 | 0 | 47% | 3.5 |
| CF5 | 9 | 11 | 8 | 0 | 16% | 3.9 |

| | | | | | | |
|-----|----|----|----|----|-----|------|
| CF4 | 11 | 10 | 25 | 9 | 50% | 2.4 |
| CF5 | 9 | 10 | 15 | 0 | 30% | 7.2 |
| CF4 | 11 | 9 | 25 | 18 | 50% | 2.0 |
| CF5 | 9 | 9 | 24 | 5 | 47% | 9.8 |
| CF4 | 11 | 8 | 25 | 21 | 50% | 1.9 |
| CF5 | 9 | 8 | 25 | 11 | 50% | 10.0 |

The significant differences between the two talent distributions illustrates the tradeoff between the quantity of transfers and future promotion prospects. Maintaining a high quality threshold suppresses entry into CF5, but a similar number of officers will fail of selection to the next grade. Note, however, that as a percentage, a much greater proportion of officers will fail of selection to the next grade from CF5 than CF4, even under a restrictive quality threshold.

Career Field Reliance on One or More Branches

Functional areas receive officers typically from a basic branch.³⁴ Some functional areas might receive a substantial percentage of their officers from a single branch, whereas other functional areas might receive a large percentage of officers from several branches. I use the term ‘feeder’ to represent a branch that sends a substantial quantity of its officers to a given functional area. In this exploratory section, I investigate the manpower relationship between functional areas and branches. Qualitatively describing the magnitude of the relationship – and the cut-off points between such values – is admittedly arbitrary. Further, I have no preceding methodology from which to draw.

I use summary data provided by HRC that describes the application and acceptance rates by VTIP panel for officers moving from each branch to each functional area. I assume that every officer who received approval to transfer actually transferred. I cannot tell if an officer applied to multiple VTIP panels (whether for the same functional area or different functional areas). Because of that limitation, I focus on approved transfers.

There are two ways to account for the relationship between a branch and a functional area in determining to what degree a branch is a feeder for a functional area:

- Branch focused: the percentage of officers from a branch who transfer to any functional area that transfer to a specific functional area

³⁴ Transfers between functional areas do occur but are rare. My analysis excludes those transfers, which account for approximately 11 events between 2013-2019. 16 officers used VTIP to transfer from a functional area to a branch during the same period, with 10 of those transferring to the new branch of Cyber.

- Functional area focused: the percentage of officers in a functional area who originated in each basic branch.

Both methods provide insight but contain noteworthy limitations. The branch focus might overstate the importance of small career fields. For instance, over one-third of the Finance branch officers who transferred moved to FA 49 (ORSA), but those six officers are a small percentage of the 332 officers who transferred to FA 49. Finance officers might be unusually interested in a transfer to FA 49, but the gross numbers suggest that FA 49 need not consider Finance an important source of accessions.

A functional area focus potentially overstates the importance of a branch, especially when that branch provides officers to many other functional areas. FA 46 (Public Affairs) provides a useful example. About 20 percent of FA 46 officers originated with Logistics branch, making it the largest feeder branch for FA 46. However, the 26 Logistics officers who were approved to transfer to FA 46 represented a small percentage (about 5 percent) of Logistics officers who transferred. Nearly 200 Logistics officers switched to the FA 51 (Acquisition), and more officers moved to four other functional areas as well. Logistics officers who decided to change to a functional area were more likely to join five other functional officers rather than FA 46, suggesting that Logistics should not be viewed as a feeder branch for FA 46.

Combining the two approaches rectifies the shortfalls of each. By multiplying two percentages together – the percentage of a branch that moves to a functional area and the percentage of a functional area from a branch – we arrive at a weighted metric for the relationship between a branch and a functional area. As a final step, we multiplied the resulting statistic by 100 to eliminate decimal places in what would otherwise be very small numbers.

Using our calculations above, the range of outcomes stretches from zero to about twelve. Numbers less than two show little relationship between a functional area and a branch; relatively few officers move between the two. At two and three, a more robust relationship exists between the branch and the functional area. A branch would be a feeder for that functional area. Larger numbers (from six to twelve) show an even more intense relationship, as a functional area might come to rely on that branch as a reliable source for personnel. In two instances, a functional area might have many feeder branches, reflecting a diversified source for new entrants. Several categories emerge from my analysis:

- Functional areas without a feeder branch
- Functional areas with a small feeder branch
- Functional areas with a large feeder branch
- Functional areas with two small feeder branches
- Functional areas with several feeder branches.

Table 3.9 shows the relationship between the functional areas and the branches.

Table 3.9 Relationship Between Functional Areas and Branches based on Accessions

| Category | Functional Area | Branch (with magnitude) |
|----------------------------|---|--|
| No feeder branch | FA 30 Information Operations | |
| One small feeder branch | FA 29 Electronic Warfare | Infantry (2) |
| | FA 46 Public Affairs | Adjutant General (2) |
| One large feeder branch | FA 24 Telecommunications Systems Engineer | Signal (12) |
| | FA 53 Information Systems Management | Signal (12) |
| | FA 34 Strategic Intelligence | Military Intelligence (6) |
| | FA 52 Nuclear and Counterproliferation | Chemical (6) |
| Two small feeder branches | FA 40 Space Operations | Military Intelligence (2) Air Defense Artillery (2) |
| | FA 49 ORSA | Aviation (3) Engineer (2) |
| | FA 50 Force Management | Adjutant General (3) Logistics (2) |
| | FA 57 Simulations Operations | Field Artillery (3) Infantry (2) |
| | FA 59 Strategist | Armor (3) Infantry (2) |
| | Several feeder branches | FA 48 FAO |
| FA 51 Acquisition Corps | | Logistics (10) Aviation (3) Infantry (3) Adjutant General (2) Armor (2) Field Artillery (2) Signal Corps (2) |

SOURCE: Author's calculations based on data from U.S. Army Human Resources Command

Table 3.9 is organized by a functional area's access to a reliable source of personnel. At one end, FA 30 (Information Operations) apparently lacked a feeder branch; no branch reliably contributed manpower to FA 30. At the other end, the two largest functional areas – FA 48 (FAO) and FA 51 (Acquisition) – had several feeder branches, allowing a diversified source of personnel. Between those extremes, functional areas dealt with situations involving one small

feeder branch, one large feeder branch, and two small feeder branches. Later in the paper, I draw on this information to show the relationship with evolving functional area entry requirements.

Summary

This chapter explores the relationship between two key measures. *Gamma* – a functional area’s breadth of appeal – gives us a perspective on the quantity of officers from which a functional area will draw. *Theta* – the approval rate – shows how many applicants transform into approvals. Viewed together, *gamma* and *theta* show that wide appeal leads to a low approval rate (and vice versa) in most cases. Functional areas with a high *gamma* and low *theta* might be viewed as widely popular, whereas those with low *gamma* and high *theta* could be described as narrowly popular. In some cases, though, the quality threshold built into the VTIP approval process prevents functional areas with few applicants from receiving a correspondingly high percentage of applicants. The pattern of applications certainly implies a relationship between functional areas and one or more branches.

4. Career Field Changes During VTIP

From 2010-2019, functional areas changed in ways that might alter their attractiveness to potential applicants. That level of attractiveness is rooted in the potential job satisfaction that someone might experience. If an officer expects to be more satisfied in a new career field, absent significant transaction costs, an officer will likely apply through VTIP for transfer if eligible.

The construct of job satisfaction can guide our examination of the attractiveness of a career field. Smith and co-authors (1969) developed a framework for understanding the underlying facets of job satisfaction, recognizing that “there are different aspects of a job that contribute differentially to a worker's overall evaluation of the job” (Edwards et al., 2008, p. 446). Those facets include:

- Pay
- Promotion
- Supervision
- Co-workers
- The nature of the work.

Facets of job satisfaction, and how they changed during the first decade of VTIP, can be understood through a variety of data. By looking at the percentage of assignments in the operational force, I tap into the job satisfaction facets of supervision, co-workers, and the nature of the work. Changes to the size of the functional area influences the availability of future promotion and the level of pay. Opportunities to attend graduate school reflect the nature of work and post-military pay. Changes to the functional area’s key tasks and its entry requirements both influence the nature of work. In short, I will investigate several ways that facets of job satisfaction changed for each functional area, from 2010-2019.

In this chapter, I divide the analysis into three broad sections. The first section will cover structural factors. Structural factors are those that derive from the Army’s force structure decisions: how units are organized, how billets are coded, and how competitive categories are managed. Functional area proponent offices might have little control over such decisions, but those decisions nonetheless influence the potential job satisfaction for those interested in the functional area.

The second section will cover qualitative factors. These factors, directly under the control of the functional area proponent office, are what the functional area says about itself: the key tasks and skills that must be accomplished in the career field and the criteria for joining the functional area. Special attention will be paid to the entry criteria, as proponent offices can more easily adjust it when competing for the affection of potential applicants.

The final section will address outcomes from the centralized promotion and separation board system. During the VTIP period, functional area officers competed for promotion with branch

officers. In some cases, certain functional areas as a group were selected for promotion at a rate well above the Army's overall average. Other functional areas routinely fell below – in some cases substantially – the Army's overall promotion average.

Structural Factors in Functional Area Career Fields

Functional area career fields differ across several dimensions. Some serve primarily in operational units, while others serve with organizations that assist with running the Army or developing future combat capability. Functional areas diverge in the importance of graduate school, with some requiring it as part of initial training, others providing some opportunities later in a career, and still others rarely if ever offering the option. Finally, the period of 2010-2019 saw the Army decline in its number of authorized officer positions by nearly 7 percent. Over the same period, some functional areas grew dramatically and others shrank considerably. In this section, we will see how structural factors changed during the first ten years of VTIP, from 2010-2019.

These structural factors are largely, but not entirely, exogenous to functional areas. Recall Figure 2.1, where I show that a functional area's relative attractiveness results from the Army's larger force structure and personnel decisions. However, these changes are not entirely exogenous to the functional area; decisions by the functional area – such as how it recruits its members or how it designs its career path – can make officers either more or less competitive for promotion. A general sense of competitiveness for promotion, as well as the esteem of the functional area in the mind of senior Army leaders, might in turn influence force structure decisions.

Changes to the Percentage of Positions in Operational Assignments

All positions in the Army belong to one of “two functionally discrete entities known as operating forces and the institutional force” (Army Doctrinal Publication (ADP) 1, 2019, p. 1-5). The operational force provides those units tasked with deploying and fighting wars, while the institutional force “consists of Army organizations whose primary mission is to generate, prepare, and sustain operating forces of the Army” (ADP 1, 2019, p. 1-5). The structure of operating forces, including its allocation of manpower and equipment, is detailed in a document called a Table of Organization and Equipment (TOE), while a similar document for the institutional force is called a Table of Distribution and Allowances (TDA). I queried a centralized repository of current and historic TOEs³⁵ and TDAs to understand the manpower allocations of functional area officers.

³⁵ The version of a TOE used in this study is a modified TOE (MTOE).

Operational Assignments and Job Satisfaction

Whether an officer serves in the operating or institutional force shapes several facets of job satisfaction. The nature of the work varies between the two entities. Operational assignments will focus on deployments, even if only as preparation, and with that comes a focus on challenges expected over the next year or two. Institutional force assignments might face problems with a longer, or even indefinite, time horizon.

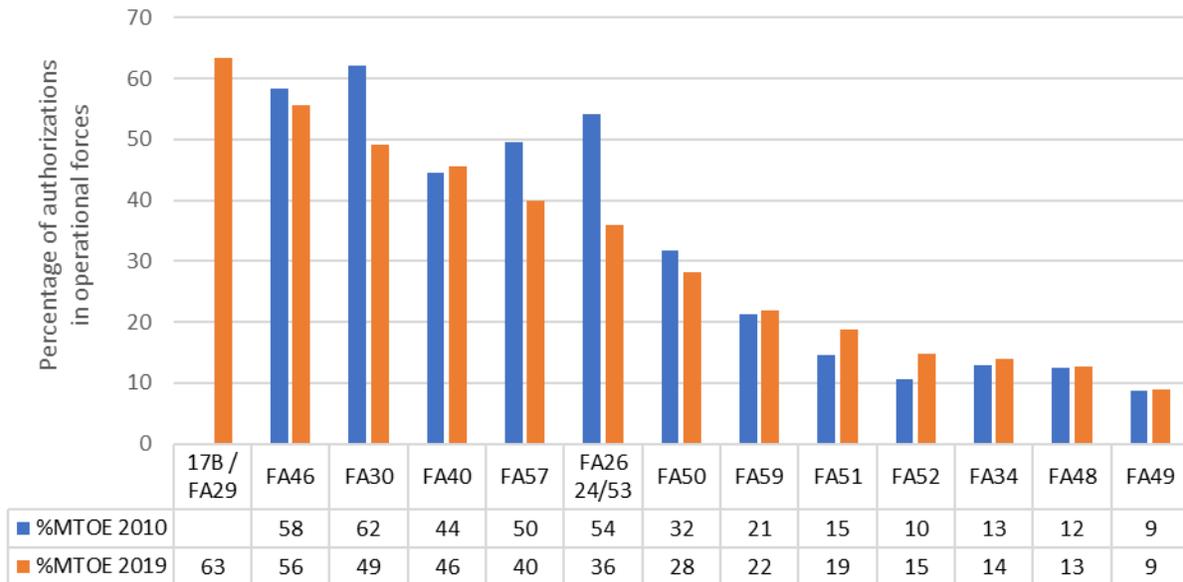
The type of co-workers also diverges, as does the supervision. An operating force assignment will often be within a unit that has a functional role, with the preponderance of officers belonging to the branch that corresponds with that function (e.g. mostly Infantry officers in infantry units; mostly Logistics officers in logistics units). Conversely, an institutional force assignment will often entail a greater diversity of career fields and less domination by one career field. In an operating force assignment, a functional area officer might be the only one of that flavor.

The tension between officers from different career fields can create undesirable workplaces in some circumstances. Mosher (1982) observed that “the most conflictive situations in professionalized but not unionized public agencies arise between those in different professionals and in different personnel systems who are approximately equal in level of responsibility and pay, but where one is “more elite” than the other” (p. 132). Less important is the specialty’s status in society, but rather how closely the specialty aligns “with the central content and purpose of the agency’s work” (p. 130). Schein (2004) noted that for each member of a workplace, baseline needs for influence and control must be met and a level of acceptance must be achieved within the group (p. 179). These needs might be more difficult for functional area officers to satisfy within operating force assignments.

Operational Assignments Data Analysis

Functional area communities vary widely in their allocations between the operating and institutional forces, as Figure 4.1 shows below.

Figure 4.1 Operational Assignments for Functional Area Officers



NOTE: Between 2010 and 2019, FA 24 (Telecommunications Systems Engineer) and FA 53 (Information Systems Management) merged into FA 26 (Information Systems Engineering); I merged FA 24 and FA 53 data from 2010 for comparison to 2019. FA 29 (Electronic Warfare) did not yet have authorized positions in 2010, and by 2019 FA 29 converted into the Cyber Branch specialty of 17B.

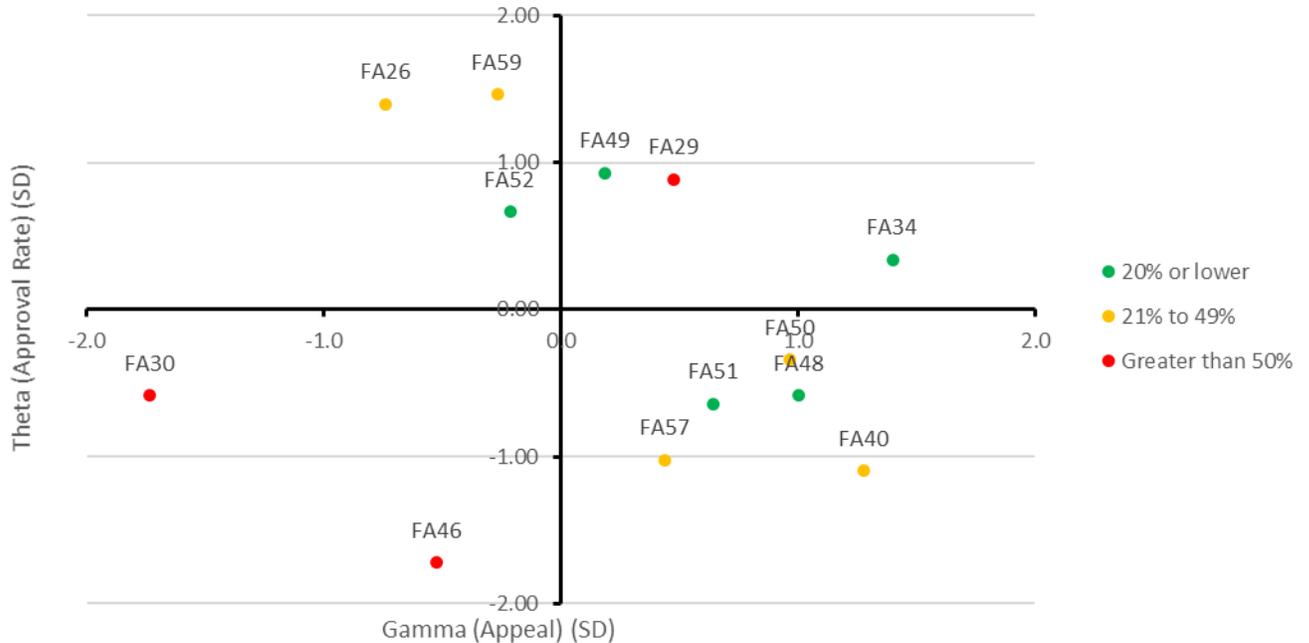
SOURCE: U.S. Army Directorate of Force Management, Force Management System Website (FMSWeb)

Figure 4.1 shows the percentage of functional area authorized positions in the operating force, comparing 2010 with 2019. Several functional areas are primarily in the institutional force, with 15 percent or less of authorized positions in the operational force. Conversely, several functional areas maintain a large presence in the operating force, although the percentage declined in several cases. The largest change occurred in the information technology functional areas, with operational assignments declining from 54% of total assignments to 36%. Most functional areas showed remarkable stability over the decade.

Operational Assignments and the VTIP Labor Market

The percentage of operational positions for a functional area provides insights into the relationship between the *gamma* and *theta* measures, as Figure 4.2 shows below.

Figure 4.2 Relationship between Operational Positions, Gamma, and Theta



Of the three functional areas in which the percentage of positions in the operational force exceed 50 percent of total positions, two exist in the problematic quadrant that combines a lower than expected approval rate and relatively narrow appeal. FA 29 (Electronic Warfare), which first emerged as a functional area in 2010 (and subsequently merged away), showed a more “expected” relationship between *gamma* and *theta*, but that might be related to its recent creation.

Changes to the Size of the Functional Area

Army career fields change size for many reasons. Force structure decisions, such as eliminating staff positions, might affect one career field more than others; conversely, new positions might be added across multiple organizations. Positions coded for one specialty might be replaced with another specialty. In other cases, the creation or elimination of an organization will affect career fields.

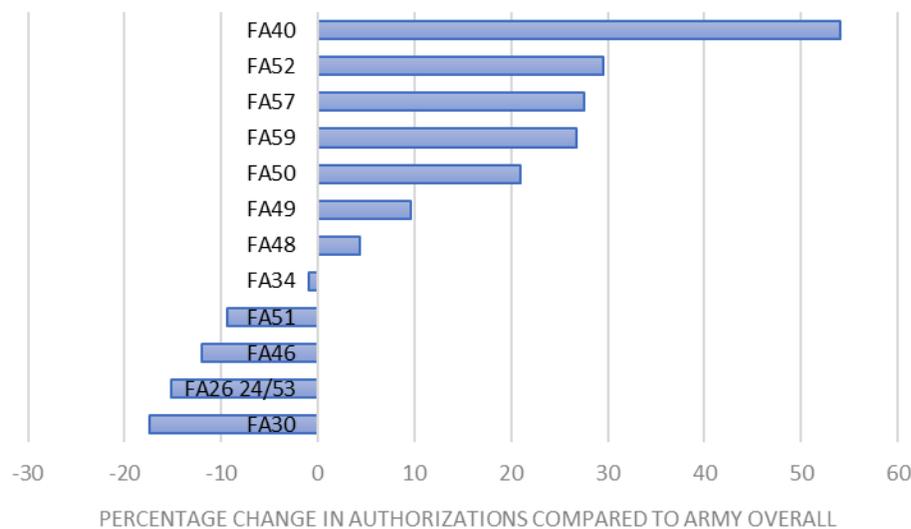
Growth Rate and Job Satisfaction

The growth rate of a functional area should influence facets of job satisfaction. A growing functional area, whether adding new positions in old locations or new locations, changes the nature of the job by providing more diversified settings. A growing functional area also presumably provides more opportunity for promotion, and thus higher pay, for those already in the career field. Conversely, a shrinking functional area will necessarily restrict the availability of locations for the next assignment, while also presumably increasing the difficulty of future promotions.

Growth Rate Data Analysis

Most functional areas added more authorized positions by 2019 compared to 2010, even as the Army shrunk by over 4,000 officer positions. Several grew dramatically, increasing in size by more than 15 percent: FA 40 (Space Operations), FA 52 (Nuclear and Counterproliferation), FA 57 (Simulations Operations), and FA 59 (Strategist). Others saw the career field shrink, losing a substantial number of positions. Figure 4.3 below shows the growth rate for functional area positions between 2010-2019, after accounting for changes in the size of the active Army.³⁶

Figure 4.3 Relative Growth Rate in Authorized Positions Between 2010-2019



SOURCE: U.S. Army Directorate of Force Management, Force Management System Website (FMSWeb)

Of those that lost positions between 2010-2019, several had a robust – but shrinking – presence in the operating force. At the same time, in only two cases – FA 34 (Strategic Intelligence)³⁷ and FA 51 (Acquisition) – did functional areas that are primarily in institutional force shrink relative to the Army. FA 29 (Electronic Warfare) is not included, as it had no authorized positions in 2010.

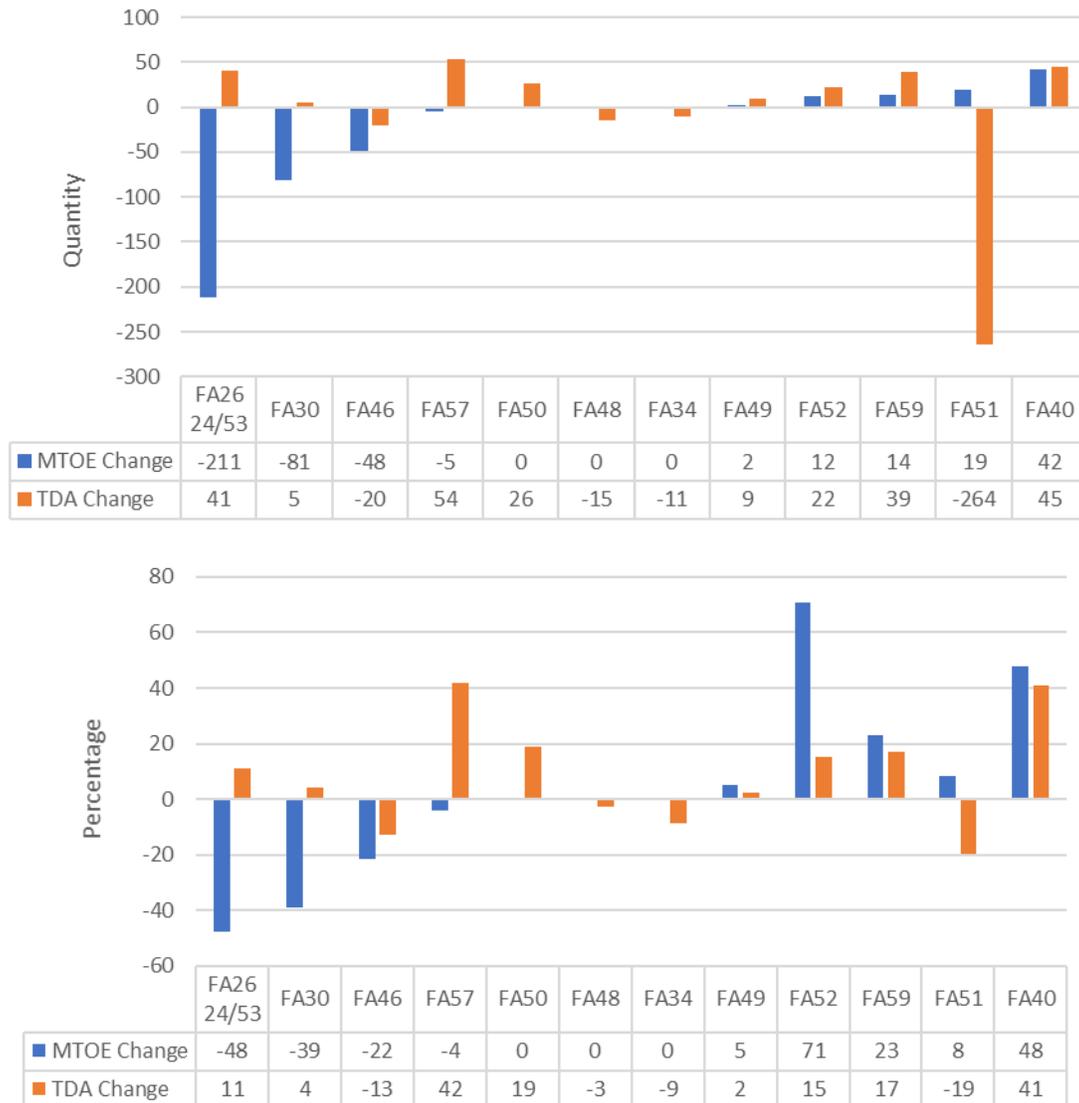
Comparing 2010 and 2019, functional areas shed far more positions in the operating force than in the institutional force. Overall, functional areas lost 267 positions in the operating force, while only losing a combined 69 positions in the generating force. Functional areas with the

³⁶ To put career field changes in perspective compared to the changes in the Army between 2010-2019, I divide the change in the size of the career field by the change in the size of officer authorizations in the active Army. For instance, FA 50 (Force Management) added about 12.9% more authorizations, while the active Army officer authorizations shrank by 6.6 percent, yielding $112.9/93.4 = 20.9$ percent growth for FA 50 relative to the active Army.

³⁷ FA 34 represents a unique case, as a long-established trend resulted in the conversion of billets from FA 34 to Military Intelligence. For instance, FA 34 lost almost half its billets between 1998 and 2006 to recoding to Military Intelligence (Torrissi, 2007, p. 12).

highest percentage of its positions in the operating force shrank the most. Figure 4.4 shows which functional areas lost or gained the most positions.

Figure 4.4 Absolute Change and Percentage Change in Authorized Positions, By Category, Between 2010-2019



SOURCE: U.S. Army Directorate of Force Management, Force Management System Website (FMSWeb)

Recently, the two smallest functional areas merged with related Army branches:

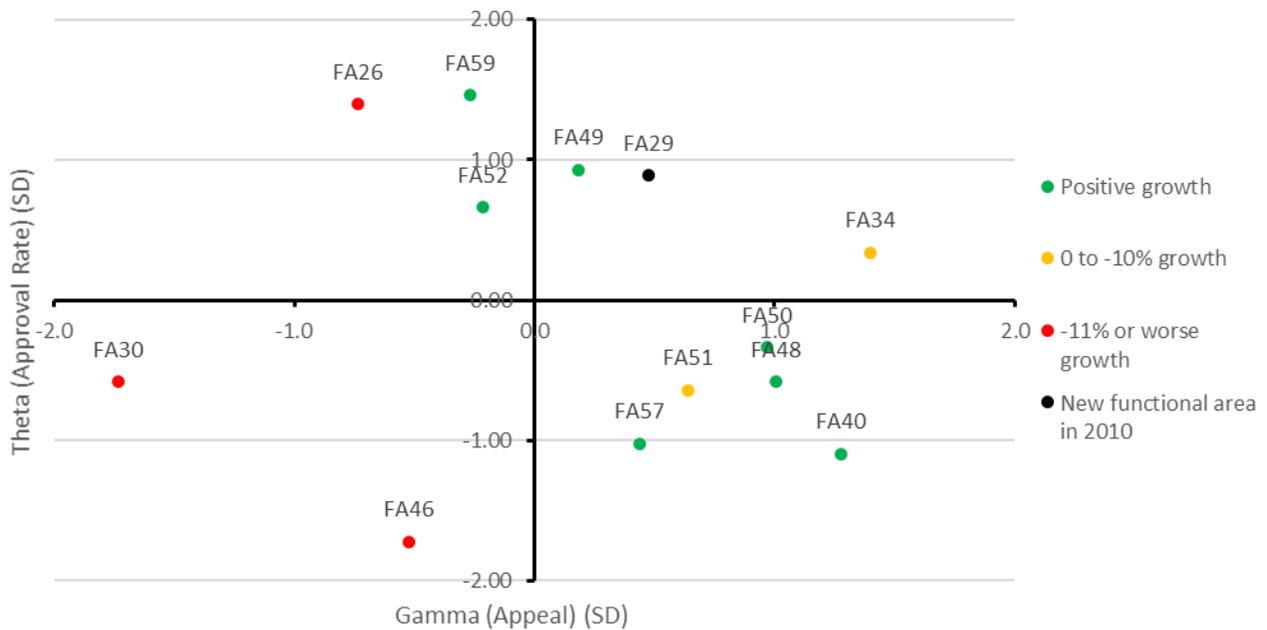
- FA 29 (Electronic Warfare) became part of Cyber branch and converted to military occupational specialty 17B (Department of the Army, 2018)
- FA 34 (Strategic Intelligence) already shared a common proponent with Military Intelligence branch and will convert to military occupational specialty 35B in fiscal year 2022 (Department of the Army, 2019).

FA 29 (Electronic Warfare) and FA 34 (Strategic Intelligence) each had about 150 or fewer authorized officer positions, leaving FA 52 (Nuclear Counterproliferation) as the smallest remaining functional area with approximately 200 positions. I explore the dynamics surrounding FA 34 in Appendix A.

Growth Rate and the VTIP Labor Market

By viewing the interaction between *gamma* and *theta* in the context of position growth, trends emerge across functional areas.

Figure 4.5 Relationship between Functional Area Growth, Gamma, and Theta



The two functional areas that display outlier behavior – FA 30 (Information Operations) and FA 46 (Public Affairs) – again separate themselves from their peers, being two of the three functional areas that lost over 10 percent of their positions between 2010-2019.

Changes to the Opportunity for Graduate Education

When I refer to graduate education, I generally define it in the context of an Army officer as a degree above the baccalaureate. Furthermore, I use it in the context of full-time, funded graduate education, as opposed to self-funded and/or part-time study. There are several ways in which officers might earn a full-time, fully funded graduate degree, including:

- As a retention incentive³⁸
- As part of the course of instruction at a professional military education (PME) institution³⁹
- As a prerequisite for filling a position or career field that requires a graduate degree.

Functional area career fields send officers to graduate school to fill “positions that require incumbents to possess an advanced education degree” (AR 621-108, 2007, p.3) and, for some functional areas, to meet initial training requirements. Three functional areas, FA 34 (Strategic Intelligence), FA 48 (Foreign Area Officer), and FA 59 (Strategist) incorporate graduate education into their initial training pipeline (DA Pamphlet 600-3, 2010). To be a member of those career fields requires successfully completing a graduate degree in an applicable, or at times specified, field.

The inventory of positions that require a graduate degree drives the availability of the graduate school opportunities; the validation of such positions occurs through the Army Educational Requirements System (AERS). Army Human Resources Command manages the available quota of graduate school opportunities and distributes that quota based on the validated AERS positions (AR 621-1, 2007).

Graduate Education and Job Satisfaction

The opportunity to attend graduate school can influence job satisfaction in at least two ways. Positions that require a graduate degree presumably require a higher degree of intellectual ability than average, or at least a greater investment in human capital, and thus reflect a more specialized and intellectually challenging nature of work. Graduate education also follows officers into post-military employment and might result in higher post-military pay.

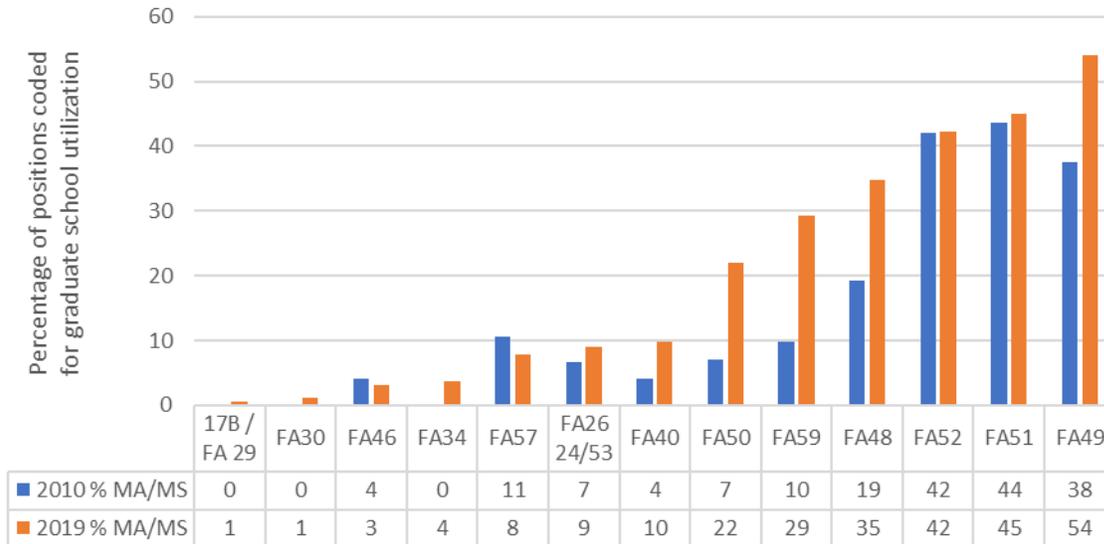
Graduate Education Data Analysis

Functional areas differ substantially regarding the opportunity for their members to attend graduate school. These differences existed at the outset of VTIP in 2010 and continued to 2019. Figure 4.6 shows the quantity of positions within each functional area designated as a graduate school utilization position.

³⁸ One such retention program is the Career Satisfaction Program. That program offered United States Military Academy and Reserve Officer Training Corps cadets the option to attend graduate school later in their career, in exchange for additional years of service. By accepting the option, the cadet agreed to serve an additional three years on active duty. If the officer exercised that option several years later, the officer must serve an additional three years on active duty for every year in school.

³⁹ Several PME institutions, including the Command and General Staff College and the Army War College, award master’s degrees upon completion in some or all circumstances.

Figure 4.6 Percentage of Positions Designated as Graduate School Utilization Positions, 2010 and 2019



SOURCE: U.S. Army Directorate of Force Management, Force Management System Website (FMSWeb)

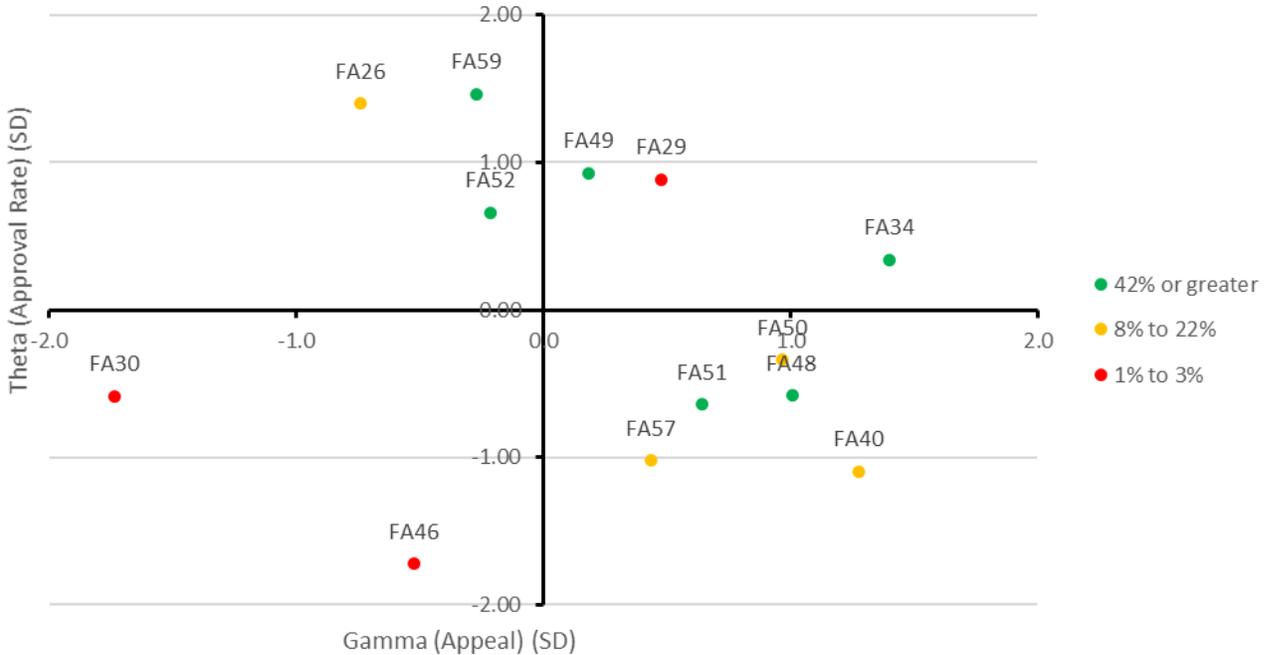
For most functional areas, an increasing percentage of their positions became tied to graduate school utilization. For only two functional areas – FA 46 (Public Affairs) and FA 57 (Simulations) – is the opposite true. Beyond the growth in the percentage of positions, great disparities exist between functional areas and the importance of graduate school. With graduate education quotas tied to the AERS-validated positions, graduate education opportunities would be rare for officers in several career fields. Conversely, other functional areas have between 40-60 percent of their positions as AERS-validated positions, making graduate education far more common in the career paths of those officers.

Recall that for three functional areas, graduate education occurs as part of the initial training in the career field. For those functional areas – FAs 34 (Strategic Intelligence), 48 (FAO), and 59 (Strategist) – the percentage of positions coded for graduate school utilization loses meaning. All members of those career field will attend graduate school, making every position a de facto utilization assignment.

Graduate Education and the VTIP Labor Market

Mapping the opportunity to receive a fully funded, full-time graduate degree onto the VTIP labor market shows the wide range of possible opportunities. In Figure 4.7, graduate school opportunity is defined as the percentage of billets identified as a graduate school utilization assignment, except for the three functional areas in which graduate school is a part of the initial training pipeline.

Figure 4.7 Relationship between Graduate Education, Gamma, and Theta



Functional areas as a class of career fields emphasize graduate education much more than branches. Three functional areas – FA 29 (Electronic Warfare), FA 30 (Information Operations), and FA 46 (Public Affairs) – depart from this generalization. FA 29 was created in 2010 with a focus on tactical assignments in the operational Army; its creation story helps explain why it had less emphasis on graduate education. For FA 30 and FA 46, their lack of graduate school opportunity, even 10 years into VTIP, helps illustrate why those functional areas seemingly depart from the relationship observed elsewhere between the quantity of applications and the approval rate.

Changes to Competitive Categories and the Independence of Functional Areas

Most functional areas exist in a promotion system that is stable, competing for promotion within an unchanging set of peers. Every functional area resides within a competitive category; officers compete for promotion against peers defined as co-members of the same competitive category. From 2010-2019, most functional areas did not switch competitive categories. In a few cases, however, shifts in the competitive category structure altered the promotion peer group for officers in a functional area.

Promotion Peer Changes and Job Satisfaction

Whether a functional area switches to a different competitive category, merges with another functional area, or merges with a branch, the result is a new collection of peers against whom one will compete for promotion. In the case of mergers, officers in the impacted functional area(s) will also compete for a new range of assignments with a narrow group of new peers. Each

of these dynamics influence some facets of job satisfaction. Because of the new collection of potential assignments, the nature of work, co-workers, and supervisors also change.

When a functional area switches competitive categories, an officer's perception of future job satisfaction might be different in the short-run and the long-run. In the short-run, a competitive category change signals a problem with a functional area's competitiveness for promotion, even if this is not the driving concern behind the decision. If the competitive category change indicates a challenge with promotion potential, and promotion is a component of job satisfaction, then future applicants might negatively weigh a competitive category change.

Conversely, the long-run effect of a competitive category change might work in the opposite direction. A competitive category change might improve the promotion prospects for a functional area, which will be reflected over time in promotion outcomes. Eventually, officers will not account for competitive category changes in their decisions, as those changes occurred in the distant past.

Promotion Peer Changes Data Analysis

Several functional areas changed their promotion peers during the first decade of VTIP. One such shift moved FA 46 (Public Affairs) and FA 30 (Information Operations) from the Maneuver, Fires, and Effects (MFE) competitive category to the Operations Support competitive category. In 2010, MFE served as the home for five functional groupings of branches and functional areas: maneuver, fires, maneuver support, special operations forces, and effects. The effects functional group contained FA 30 and FA 46 as its only members (Department of the Army, 2010). By 2014, FA 46 moved to the Operations Support competitive category (Department of the Army, 2014), and would be joined by FA 30 by 2017 (Department of the Army, 2017).

The other major shift arose from the creation of a Cyber branch, which presaged the creation of an Information Dominance competitive category. In 2017, the Army moved Cyber, FA 29 (Electronic Warfare), and FA 30 (Information Operations) to the new competitive category, removing them from the Operations Support competitive category.

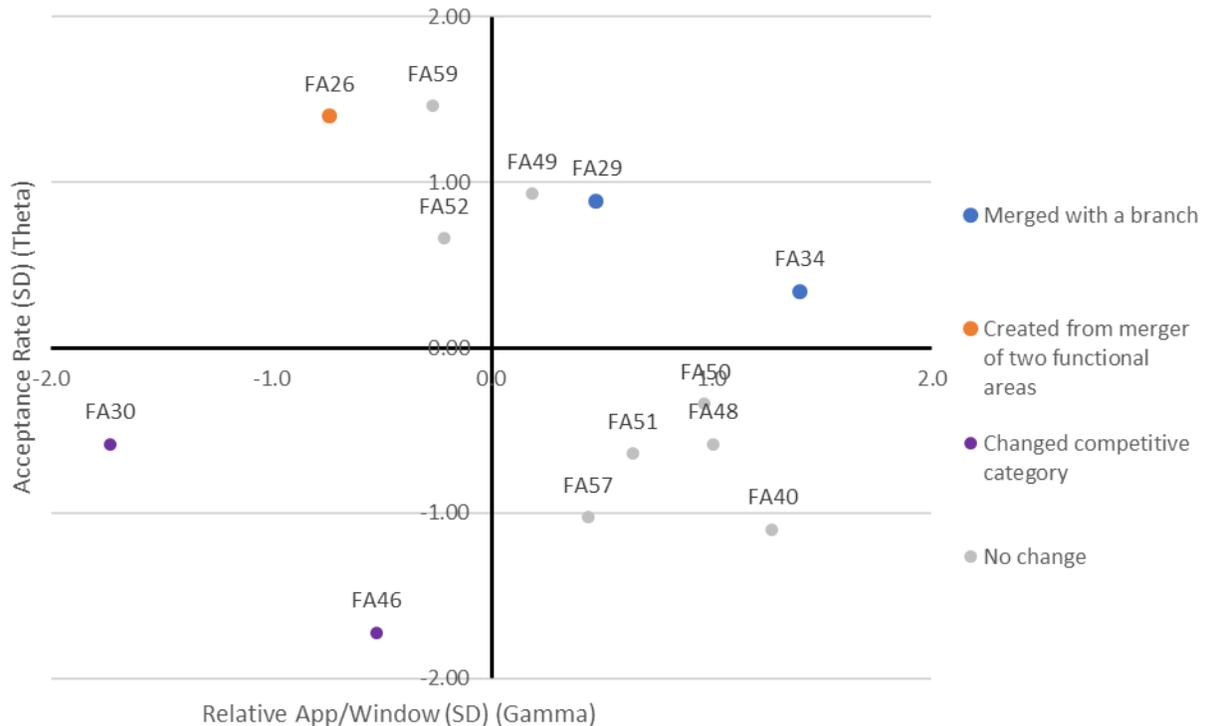
Even when remaining in the same competitive category, some functional areas experienced mergers, whether with a larger branch or between functional areas. As mentioned before, FA 29 (Electronic Warfare) and FA 34 (Strategic Intelligence) merged with Cyber and Military Intelligence, respectively. FAs 24 (Telecommunications System Engineer) and 53 (Information Systems Management) combined to create FA 26 (Information Networks Engineering).

Six functional areas saw changes, with five of the functional areas heavily invested in operational assignments. In 2010, four functional areas had more than 50 percent of their total authorizations in the operational realm, and FA 29 would join their number shortly thereafter. All five of those functional areas experienced changes to their promotion peers. FA 34, a functional area with low representation in operational assignments, changed for other reasons.

Promotion Peer Changes and the VTIP Labor Market

Changes to promotion peers show less relationship with *gamma* and *theta* than other structural factors, as reflected in Figure 4.8 below.

Figure 4.8 Relationship between Promotion Peers, Gamma, and Theta



Functional areas that score relatively high in *gamma* and relatively low in *theta* – those with relatively more applicants and a lower acceptance rate – did not change their promotion peers between 2010-2019. Some with low scores in *gamma* and high scores in *theta* – or those with relatively fewer applicants and a higher approval rate – did experience changes to their promotion peers, but this is far from universally true. As I have demonstrated with other structural factors, FA 30 (Information Operations) and FA 46 (Public Affairs) continue to look different than most functional areas; this observation continues with promotion peers.

Promotion Outcomes for Functional Area Career Fields

As introduced in Figure 1, centralized promotion selection boards provide important cues to the Army about career fields. A higher than average promotion rate need not indicate the value or importance of a career field, but it can indicate the Army's assessment of average quality relative to peers. A career field with average or higher than average historic promotion prospects might be more attractive to officers, because higher than average promotion prospects might indicate many desirable considerations, including:

- Those who complete performance evaluations for members of the career field find the work of rated officers to be valuable
- Members of the career field might be happier if high-quality performance evaluations make an individual officer happier than a lower-quality performance evaluation

Several functional areas have changed competitive categories, and some repeatedly (see Table 2.4, above). At present, functional areas compete for promotion in one of three⁴⁰ competitive categories:

- Operations Support, comprised of the branches of Military Intelligence and Signal plus the functional areas of FA 26 (Information Management Engineering), FA 34 (Strategic Intelligence), FA 40 (Space Operations), FA 46 (Public Affairs), FA 48 (FAO), FA 49 (ORSA), FA 50 (Force Management), FA 52 (Nuclear and Counterproliferation), FA 57 (Simulations Operations), and FA 59 (Strategist)
- Force Sustainment, comprised of the branches of Adjutant General, Finance, and Logistics, plus the functional area of FA 51 (Acquisition)
- Information Dominance, comprised of the branch of Cyber (including the former FA 29), plus the functional area of FA 30 (Information Operations).

Promotion Outcomes to Major

To understand promotion outcomes, I use compiled primary zone promotion rates for FY 2012-2019, by career field and for the Army overall. It is important to note that the rates do not reflect the size of the numerator (those selected for promotion) or the denominator (those considered for promotion). Because each cohort might be of differing sizes, averaging the rates might produce a misleading statistic. To minimize the risk of a misleading statistic, I compare the percentage of those selected for promotion within a career field to the percentage of those selected for the Army overall. To generalize that trend across years, I report the median difference between the two rates.

⁴⁰ A fourth competitive category, Operations, does not have functional areas within it.

Figure 4.9 Median Difference in Promotion Rates to Major, Fiscal Year 2012-2019

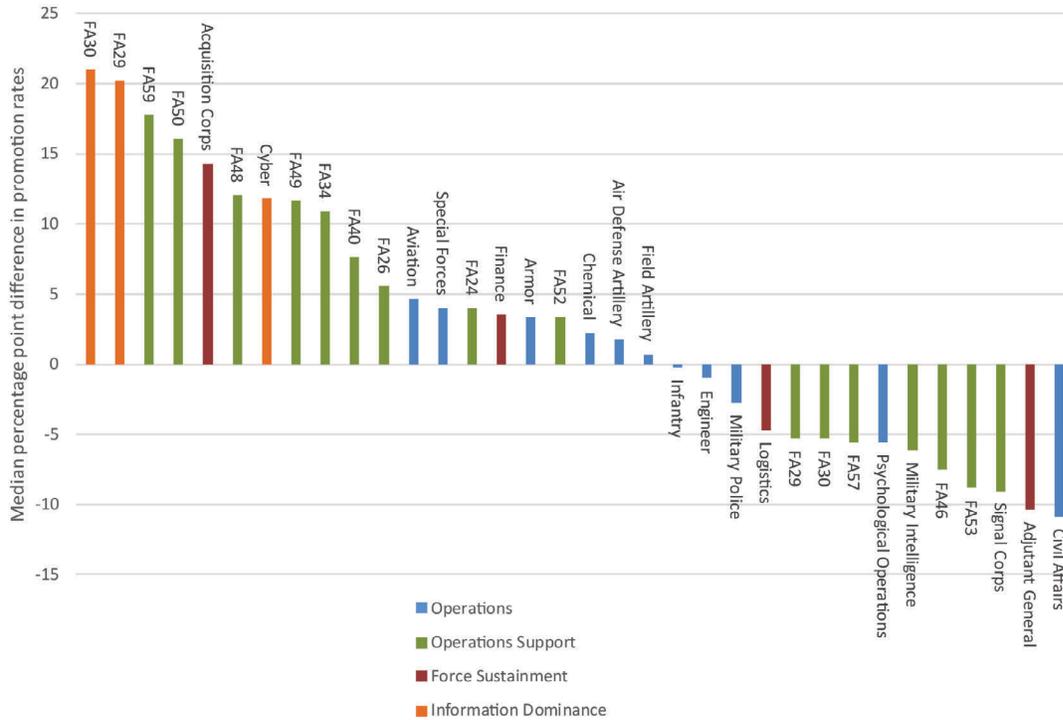


Figure 4.9 above is color-coded by competitive category. Astute observers will notice that FAs 29 and 30 are recorded twice: in orange when part of the Information Dominance competitive category and in green when part of Operations Support. Both functional areas saw far higher promotion rates after switching competitive categories, though with only one (FA 29) or two (FA 30) years of data.

Many functional areas experienced substantially higher promotion rates to major than the overall Army average. Functional areas with wide appeal and narrow appeal both performed well. Those functional areas that saw promotion rates substantially below the Army average contain far more assignments in the operational force. Functional areas with lower promotion rates will, in some circumstances, change entry requirements in response. Later in the chapter, I will discuss how both FA 46 (Public Affairs) and FA 57 (Simulations Operations) increased the requirement for military experience, likely to increase the likelihood that an officer will be selected for promotion to major.

As noted earlier, the VTIP panel sets the quality threshold for military performance as roughly equivalent to the presumed threshold for promotion to major. With that in mind, functional areas *should* have higher promotion rates to major than basic branches; those who are approved through VTIP for transfer have demonstrated, up to the point of their application, that

they are at least on track for promotion. For those functional areas that receive many more applications relative to their size, the gap between an approved officer's performance to date and the quality threshold will be even larger.

Some circumstances might undermine the expectation that functional area officers will be promoted at a higher rate than basic branch officers. Force structure reductions, particularly at the higher grades, will necessitate fewer promotions. Other reasons likely have more influence, though. Functional area officers in operational assignments will often compete for high-quality performance evaluations with branch officers (e.g. infantry or military intelligence); within the operational force, branch officers – and typically a concentration from one branch – will numerically if not culturally dominate the unit. In those competitions, functional area officers might disproportionately suffer.

Promotion Outcomes to Lieutenant Colonel

Seven functional areas saw promotion rates to O-5 that closely mirrored the Army's overall rate, with median differences of no more than five percentage points. Two functional areas⁴¹ – FA 59 (Strategist) and FA 34 (Strategic Intelligence) – exceeded the Army's rate by eleven and nine percentage points, respectively.

⁴¹ FA 47 (Permanent Professor) also met this criterium. However, I exclude FA 47 from most of the analysis in this dissertation. FA 47 officers do not apply for the functional area through VTIP, but rather have a separate application process through the United States Military Academy or the U.S. Army War College.

Figure 4.10 Median Difference in Promotion Rates to Lieutenant Colonel, Fiscal Year 2012-2019

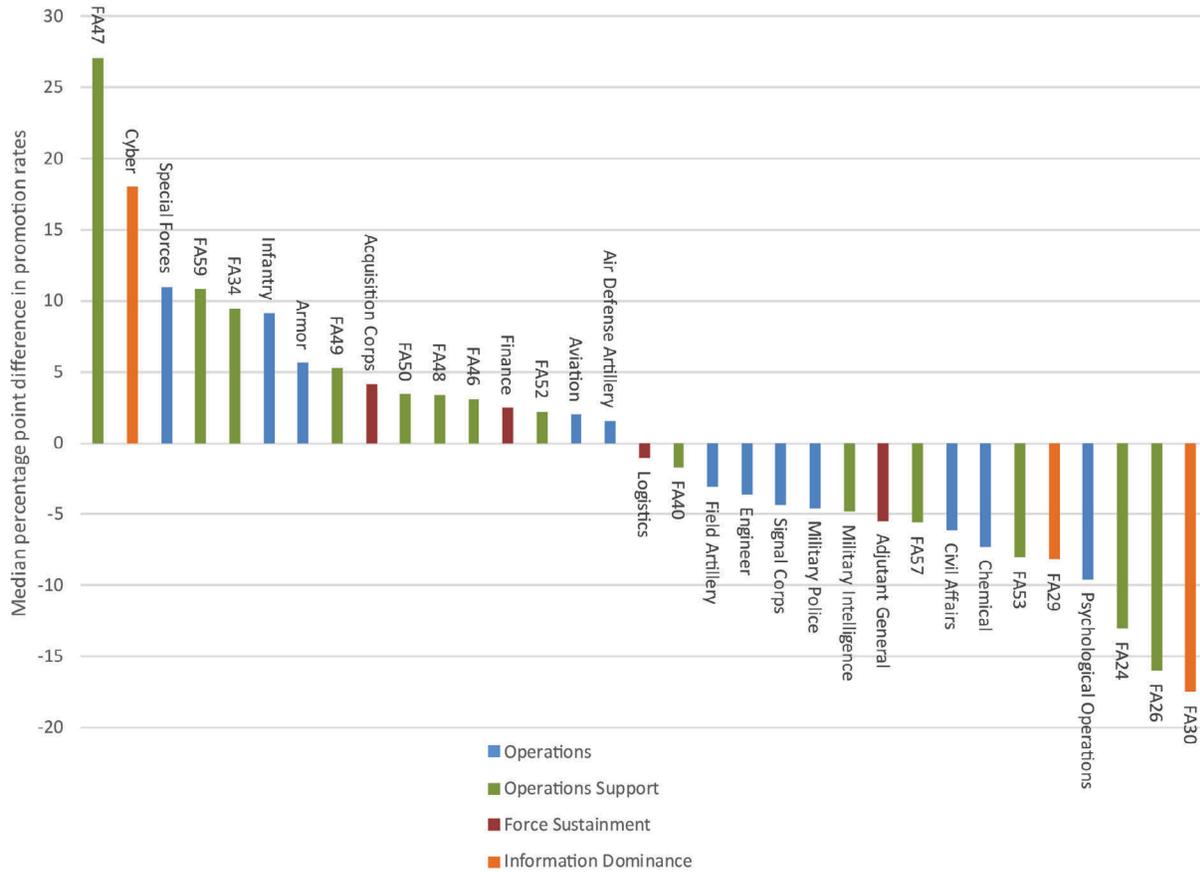


Figure 4.10 above, again color-coded by competitive category, shows the significance of operational assignments on promotion outcomes. Every functional area that exceeded 35 percent of its total authorizations in the operational force saw a promotion rate below the Army’s overall rate.

Qualitative Factors in Functional Area Career Fields

Functional areas change over time, both in how the functional area describes itself and what it expects of new members. Technology might change, introducing changes to tasks. The roles to be filled by members of a functional area might change. Changes to one functional area might lead to changes in another functional area in response. In this section, I investigate two ways in which functional areas changed: in the description of the career field and in the entry requirements for the career field.

These changes – in how the functional area describes itself and what it expects of new members – significantly depart from the structural factors of the previous section. Functional

area proponent offices have far greater control over these qualitative changes. This difference, determining changes rather than receiving changes, ties the changes much more closely to the operation of VTIP. While structural factors shape how the functional area might perform in the VTIP labor market, a functional area can influence its performance through qualitative changes that reside more firmly within its control.

Changes to Functional Area Descriptions and Key Tasks

Every Army career field provides a description of the career field, key tasks associated with the career field, and a model for a career in that field. With that information, officers in that career field can set expectations and develop career plans, while officers outside of that career field can gain familiarity with the fundamentals of the career field. Periodically and infrequently, the Army releases updates to these descriptions. Historically, and including during the early years of VTIP, the Army released all updates through one consolidated career manual. Later in the same decade, the Army moved to an electronic repository that allowed for updates to individual chapters. I reviewed the functional area chapters in the consolidated career manual from 2010 (DA Pamphlet 600-3, 2010) and updated functional area chapters from 2017.

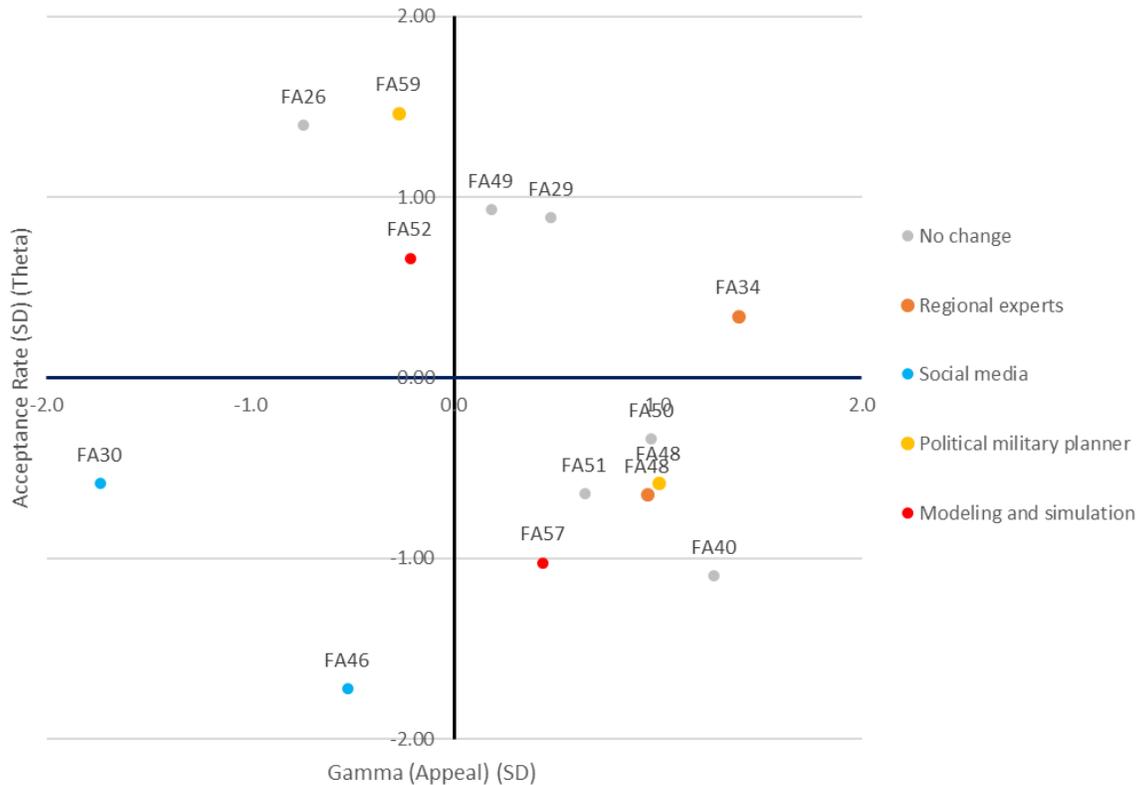
At the outset, I must introduce a caveat to the discussion. Any functional area could easily warrant a lengthy treatment, one that exceeds the scope of this investigation. I limit my analysis to the addition or subtraction of key tasks. Most functional areas significantly changed the wording behind the career field descriptions and in many cases the wording of key tasks. But during my review, I also noted significant similarities between the two versions, and no functional area fundamentally changed the nature of its work.

Abbott (1988) found that occupations often compete for the opportunity to engage in expert labor. In some interesting cases, functional areas seemingly encroached on territory held by other career fields. For instance, FA 34 (Strategic Intelligence) added as a new purpose the role of “regional experts,” synchronized with a desired academic background in area studies (Strategic Intelligence Functional Area, 2017). This change placed FA 34 in competition with FA 48 (Foreign Area Officer), which is the more intuitive source of regional expertise. In turn, FA 48 introduced a function “as political military planners on operational and strategic level staffs,” which closely aligns with work done by FA 59 (Strategist) officers (Foreign Area Officer, 2017). In other cases, functional areas reduced the overlap between them. FA 52 (Nuclear and Counterproliferation) removed a task associated with modeling and simulation, work closely aligned with FA 57 (Simulation Operations) (Nuclear and Counterproliferation, 2017).

The emergence of a new work area enticed two career fields into the same space. FA 46 (Public Affairs) and FA 30 (Information Operations) each introduced new and potentially overlapping tasks related to social media (Public Affairs, 2017; Information Operations, 2017). The same dynamic might merge in the future for artificial intelligence, as multiple career fields – including FA 49 (ORSA) and FA 57 (Simulations Operations) – might reasonably attempt to stake a claim to the field.

There's some evidence that if career fields encroach on work areas held by another or retreat from such confrontation, the competition occurs between career fields that face different circumstances in the VTIP labor market. In Figure 4.11 below, I use the standard gamma and theta scatterplot and code career fields based on this competition.

Figure 4.11 Relationship between Competition Over Key Tasks, Gamma, and Theta



In some cases, functional areas that competed over key tasks had substantially different relationships between *gamma* and *theta*. The competition between FA 59 (Strategist) and FA 48 (Foreign Area Officer) illustrates this occurrence, as does the competition between FA 52 (Nuclear and Counterproliferation) and FA 59 (Simulations Operations). Career fields that appeal to a narrow pool of qualified applicants (e.g. FA 59 and FA 52) compete, at least in some instances, with those of broader appeal (e.g. FA 48 and FA 57). However, given the small number of instances, I am loathe to produce a general theory to explain this occurrence.

Changes to Functional Area Entry Requirements

For each VTIP panel, HRC issued a military personnel (Milper) message that provided key details on the panel, including the date, in and out eligibility criteria, and desired or required knowledge, skills, and attributes (KSAs). I reviewed every VTIP Milper message from 2012-2019. I will refer to required KSAs as entry requirements.

Entry requirements sort into three broad categories: military experience; education; and tests of other KSAs. Every functional area included at least one entry requirement, and some included entry requirements from each category. As I will show, the entry requirements changed over time.

Military experience, as a category, includes both professional military education and specific previous roles in the military. Some functional areas required that applicants must have graduated from a branch-specific, captain-level training course called the Captain's Career Course. Other functional areas would send an officer to that training if the officer had not yet attended. Functional areas also differed on the amount of experience an officer must have prior to transfer. Some functional areas required that an officer complete the KD assignment for the officer's current branch prior to transfer.⁴² Other functional areas accepted officers prior to the completion of a captain-level KD assignment.

The preference for KD-complete officers on the part of some functional areas arises from multiple considerations. A KD-complete captain will often be more experienced than an officer yet to command a company, even in terms as simple as years of service. Because many company command positions are in the operational force, a KD-complete officer has "muddy boots" credibility. A KD-complete officer will also have a shared career reference point with branch officers for whom repeated command tours across different ranks is the standard career path. Successful completion of a command tour also provides an important predictor for future promotion, even if the officer has little experience in the functional area in which an officer competes for promotion.

Other types of military experiences were desired by functional areas, though not required. These experiences included completing certain training courses or working in/with generally uncommon organizations. Because these experiences were merely desired, I do not classify them as entry requirements.

Education-related entry requirements included the field of study for an undergraduate degree, minimum undergraduate grade point average, and specified course work (e.g. calculus). Because VTIP-eligible officers are years-removed from undergraduate study, officers have little opportunity to improve their eligibility without an investment (whether self-funded or Army-funded) in graduate study. The field of study for an undergraduate degree ranged from named fields of study to much broader constructs such as science, technology, engineering, and mathematics (STEM). No functional area requires a graduate degree as an entry requirement.

Functional areas also required other KSAs as entry requirements, often using tests as screening tools. Several required an identified minimum score on the Graduate Record Examination (GRE), with variation between some requiring a minimum score on the quantitative section and others requiring minimum scores across all three tested areas. In other cases, functional areas used specifically designed tests and questionnaires to judge whether an applicant

⁴² For most branches, the key developmental (KD) assignment for a captain is company-level command.

possessed the KSAs to be effective in the career field. Still others required work samples or certifications.

At times, functional areas set an attribute as an entry requirement, but did not tie a test or other mechanism to identifying the attribute in an applicant. For instance, a functional area might say that the possession of expert communications skills is an entry requirement. Effectively judging whether an applicant possesses expert communication skills likely requires specialized testing. In 2019, two functional areas identified expert communication skills as an entry requirement, but only one tested for its presence.

Why should we be interested in entry requirements? Entry requirements, as well as desired KSAs, play an important role in recruiting, selection, and hiring standards (Doeringer and Piore, 1971). While a functional area can interact with the larger labor market for officers in many ways, some mechanisms are outside of its control. Wages, for instance, are determined exogenously, as is the rank structure and the location of work. Recruiting, selection, and hiring standards are effectively determined and controlled by a functional area.

By recruiting, I refer to the actions by which an organization brings a job opportunity to the candidate's attention and influences whether the candidate applies (Breux, 2008). Those actions might be directed at those highly inclined to apply, as well as those who might have little initial interest.

Selection refers to how an employer – in our case a functional area operating under VTIP – systematically gathers information about the applicant's job qualifications. The selection device(s) used present tradeoffs, between validity, applicant reactions, bias or subgroup differences, cost, and administrative burden (Office of Personnel Management, undated). As Doeringer and Piore note (1971, p. 103), "Screening is almost always probabilistic;" there is some probability that the screening device predicts future job performance.

Hiring standards⁴³ are closely related to selection devices, and "a good deal of what appears to be a general reduction in hiring standards ... is, in reality, simply a change in screening procedures" (Doeringer and Piore, 1971, p. 105). In the context of VTIP, we do see changes to hiring standards on occasion. FA 46 (Public Affairs) provides a great example. For VTIP panels in 2012, FA 46 required that applicants be KD complete, in effect meaning that captains had completed company command (Milper Message 11-389, 2011). In 2013, FA 46 relaxed that hiring standard and accepted officers who were not KD complete (Milper Message 13-159,

⁴³ Hiring standards, and the cutoff scores that accompany them, follow three patterns according to Cascio, Alexander, and Barrett (1988). One pattern, more common in private organizations, is to conduct continuous testing. Using a high cutoff score, the organization will hire individuals from the pool who have exceeded the cutoff. Alternatively, some organizations – often public – will base hiring decisions on the performance on the test; in those situations, the cutoff is less important than the ordinal ranking of performance. Finally, both public and private organizations will use the cutoff score as a screening device, only considering those who have achieved the minimum score.

2013). In 2017, FA 46 returned to its earlier hiring standard and again required that applicants be KD complete (Milper Message 17-055, 2017).

Entry requirements – by influencing recruitment, screening, and hiring standards – shape how well the members of a functional area respond to four challenges:

- Selection for promotion, especially at the next promotion board
- Satisfactory completion of functional area training
- Satisfactory performance in functional area jobs
- Enough quantity of personnel to fill authorized positions.

These challenges, should any of them not be met, produce very inefficient outcomes for functional areas. An officer selected for entry into a functional area who is not selected for promotion risks involuntary separation; the functional area thus risks losing its investment in education and training. An officer who fails to complete training will be removed from the career field, but at the loss of the time, effort, and resources put into the training.

To meet those challenges, using the tools of entry requirements, functional areas manage trade-offs, whether intentionally or not. Entry requirements that ensure that all selected individuals can weather promotion, training, and performance might produce too few officers. Those who are best suited for the training and the job might, for some reason, be at risk for promotion. Excelling at the functional area training might not perfectly correlate with excelling in the job.

Entry Requirements in 2012

In 2012, most functional areas provided a mixture of entry requirements (to establish hiring standards) and desired KSAs (as screening mechanisms) in the VTIP announcements. At this early date, many of the hiring standards focused on military experience. For instance, six functional areas required a top secret security clearance.⁴⁴ Failing to obtain and maintain the requisite security clearance would force an officer to move to a different career field.

Functional areas were split on the overall level of military experience. Several required that applicants had previously completed their KD experience as captains, including FA 34 (Strategic Intelligence), FA 46 (Public Affairs), FA 48 (FAO), FA 49 (ORSA), FA 50 (Force Management), FA 52 (Nuclear and Counterproliferation), and FA 51 (Acquisition). Most that did not require a KD complete status had many captain positions, whereas most that required KD completion had few if any captain authorizations.

⁴⁴ Tempering the top secret security clearance requirement, most functional areas specified that one must either possess or could possess such a security clearance.

Table 4.1 Functional Areas and Key Developmental Experience in 2012

| Category | More than 20 O-3 authorizations in 2012 | Less than 20 O-3 authorizations in 2012 |
|--|--|---|
| Required previous KD experience | FA 46 (Public Affairs) ^a FA 51 (Acquisition) | FA 34 (Strategic Intelligence) FA 48 (FAO) FA 49 (ORSA) FA 50 (Force Management) FA 52 (Nuclear and Counterproliferation) |
| Did not require previous KD experience | FA 24 (Telecom) FA 29 (Electronic Warfare) FA 30 (Information Operations) FA 40 (Space Operations) FA 53 (Information Systems) FA 57 (Simulation Operations) ^b | FA 59 (Strategist) ^c |

NOTE:

^a FA 46 (Public Affairs) required applicants be KD complete until 2013, at which point it allowed non-KD complete applicants. FA 46 returned to its original hiring standard in 2017.

^b FA 57 (Simulations Operations) specified that captains without company command experience would be assigned to a company command position upon entry into FA 57. In 2014, FA 57 started requiring command experience from all applicants.

^c FA 59 (Strategist) required company command experience starting in 2013.

SOURCE: Author's calculations based on data from U.S. Army Human Resources Command

Educational requirements were used by several functional areas. GRE minimum scores served as an entry requirement in three cases: FA 34, FA 52, and FA 59. Once the minimum hiring standard was met, educational requirements of this kind likely transitioned to a screening device. Several functional areas specified the desired academic background, ranging from degree fields to course requirements. Science, technology, engineering, and math (STEM) degrees were a focus for the information technology functional areas (FAs 24 and 53) and FA 52 (Nuclear and Counterproliferation).

Other functional areas where a STEM degree might seem appropriate declined to include it as a hiring standard in 2012. FA 49 (ORSA), FA 40 (Space Operations), FA 29 (Electronic Warfare) and FA 57 (Simulation Operations) did not require a STEM degree, although FA 49 required calculus in college and screened for quantitative degree fields. FA 51 (Acquisition) and FA 50 (Force Management) both looked for officers with a background in business. The liberal arts, humanities, and social sciences received no attention in the earliest VTIP messages, including from fields such as FA 46 (Public Affairs) or FA 59 (Strategist) where written communication might be important.

Functional areas identified other KSAs, beyond military experience and educational attainment. FA 30 (Information Operations) desired officers with several different traits, although validating those traits, such as strategic thinking, would be a challenge. The information technology functional areas each desired officers with IT certifications, while FA 29 (Electronic Warfare) encouraged officers who had graduated from certain Army training courses to apply.

FA 48 (FAO) used a variety of entry requirements to a greater degree than other functional areas. To serve as a FAO, an applicant must complete a FAO questionnaire, meet a minimum

score on a test designed to assess the potential to learn a foreign language, and achieve a minimum grade point average in college. More senior officers desiring to serve as a FAO faced more stringent requirements, which reflected the substantially longer training period for a new FAO. More senior officers must have completed one or more FAO training blocks: earned a regionally-focused master's degree, demonstrated proficiency in a foreign language, or possess substantial in-country experience in a foreign country.

Entry Requirements after 2012

Entry requirements and KSAs changed throughout the period studied in explainable ways. Earlier, I discussed four challenges that functional areas faced: future promotion, passing training, performing in the job, and sufficient quantity of personnel. The changes to entry standards addressed those challenges, but only in certain circumstances. Many functional areas made no significant changes or only slightly changed screening criteria.

Functional areas behaved as if they were pursuing one of four goals:

- Maintain the status quo
- Increase the quantity of suitable applicants by adopting an alternate pathway of hiring standards
- Increase the promotion prospects of those approved to enter the functional area by increasing hiring standards related to military experience
- Improve the quality of those selected through more rigorous selection methods, which in turn might improve the probability of satisfactory performance with respect to passing training, being selected for promotion, and performing adequately in the job.

Several functional areas maintained the status quo, making small if any changes to their entry requirements from 2012-2019. Five functional areas fit this broad category, including FA 34 (Strategic Intelligence), FA 40 (Space Operations), FA 48 (FAO), FA 50 (Force Management), and FA 51 (Acquisition). In the event of small changes, some were to hiring standards⁴⁵ whereas others were to screening devices.⁴⁶ FA 48 and FA 51⁴⁷ instituted a requirement for GRE scores, while FA 40 (Space Operations) placed a priority on STEM degrees (Milper Message 12-315, Milper Message 18-282). Significantly, functional areas that maintained the status quo all existed in the space of low *theta* and high *gamma* – relatively many applicants and relatively low approval rate. Faced with many applicants, the functional areas continued as before.

⁴⁵ As an example, FA 48 started to require that the spouse of a married applicant possess U.S. citizenship (Milper Message 18-070, 2018).

⁴⁶ For instance, FA 40 indicated that a STEM degree was preferred, but not required (Milper Message 18-282, 2018).

⁴⁷ The Army Acquisition Corps established a masters-level systems engineering management curriculum at the Naval Postgraduate School, devoting a significant number of newly accessed officers to the training course. 30 Acquisition Corps officers graduated from the first cohort in 2019 (Dillard, 2019).

Some functional areas implemented an alternate pathway into the functional area. The alternate pathway was a secondary set of selection criteria that differed from the primary set of criteria. FA 52 (Nuclear and Counterproliferation) provides an exemplary case. The primary set of entry requirements focused on academic preparation: a relevant undergraduate field of study; a minimum undergraduate grade point average; and a minimum GRE score. In 2013, FA 52 allowed officers who had served in niche roles related to the FA 52 mission to qualify for the career field without a STEM degree (Milper Message 13-046, 2013). The alternate pathway provided an avenue into the functional area for some who did not possess the academic qualifications but did have other important skills.

The functional areas that combined into FA 26 pursued a similar strategy. FA 53, which traditionally required a college degree in an IT field, accepted applications from those enrolled in an IT graduate degree or had earned identified IT credentials starting in fiscal year 2014 (Milper Message 14-175, 2014). FA 24 and FA 53, both in 2016, further opened this alternative pathway by emphasizing STEM-related experience in lieu of formal college education (Milper Message 16-039, 2016). The traditional pathway, defined as recruiting those with college-level education in IT or STEM fields, remained the identified entry requirement, but the alternate pathway provided a mechanism for those with less-traditional skills.

FA 49 (ORSA) also created a variant on the alternate pathway, by advising that officers currently teaching at West Point should apply (Milper Message 18-070, 2018).⁴⁸ Most functional areas required that officers expediently move from their pre-VTIP position into new positions within the FA, typically starting training within a year following VTIP approval. By allowing those destined for or already in teaching assignments, FA 49 expanded the pool of potential applicants and appealed to those with KSAs related to FA 49.

The functional areas that implemented an alternate pathway combined high scores for *gamma* and low scores for *theta*, approving a high percentage of their low quantity of applications (i.e. appeal to a self-selected and small population of qualified officers). Essentially, these functional areas used entry requirements to appeal to small cohort of potentially interested officers. Such a gambit might leave the functional area better off by increasing the supply of officers who can fill authorized positions. In creating an alternate pathway, functional areas create risk in other areas, though. Alternate pathway officers might not perform as well in training or in the job, especially if performance on educational entry requirements correlates well with those areas.⁴⁹

⁴⁸ Other functional areas, if they addressed a teaching assignment at all, advised applicants that an assignment to the U.S. Military Academy might make them less competitive for selection for the functional area. FA 49 (ORSA) likely possesses more flexibility than other functional areas due to its rather unique training pipeline. New FA 49 officers complete either a master's degree in a relevant discipline (e.g. applied mathematics or operations research) or complete the ORSA Military Applications Course (Henry and Smith, 2015). No other functional area uses this either/or training strategy.

⁴⁹ Entry requirements might not be well-correlated with training success and job performance, as many organizations do not routinely review (or even collect) such data.

Some functional areas introduced new screening mechanisms that appear to be designed to increase the quality of those selected for the functional area. By improving the quality through a screening mechanism, these functional areas might improve the probability of satisfactory performance with respect to passing training, being selected for promotion, and performing adequately in the job.

FA 59 (Strategist) employed three assessments, first requiring a graduate school skills diagnostic test and a writing sample in 2014 and a survey of personal attributes in 2018, in addition to completing pre-training coursework introduced in 2016 (Milper Message 14-175, 2014; Milper Message 16-039, 2016; Milper Message 18-282, 2018).⁵⁰ FA 29 (Electronic Warfare) started using a questionnaire when the FA became part of Cyber branch in 2016 (Milper Message 16-039, 2016).⁵¹ Concurrently, FA 29 also started requiring a personal letter and college transcript as part of a VTIP application, only to remove those two requirements with the next VTIP panel (Milper Message 16-243, 2016).

FA 46 (Public Affairs) started requiring a writing sample in 2019, placing it on a par with the assessments employed by FA 29 and FA 59 (Milper Message 18-282, 2018). FA 46 already faced relatively narrow appeal, as indicated by its low relative quantity of applications. By introducing a new test and by linking the test to the type of work done in the functional area, FA 46 might be able to improve the average quality of its applicants over time and raise its approval rate – and thus place it on a par with other functional areas with narrow appeal.

Finally, some functional areas raised hiring standards for military experience. Functional areas generally fall into two categories: those that require officers complete their KD assignment *in their current branch* prior to transfer and those that accept officers who have not. FA 46 (Public Affairs), FA 57 (Simulations Operations), and FA 59 (Strategist) each implemented a hiring standard that required KD-complete officers.

For FA 59, this appears reasonable. The functional area has no captain positions; the most junior position in the functional area are for majors. While captains routinely transfer to the functional area, the grade structure of the functional area facilitates a patient approach to transfers: an officer need not rush, either in acquiring military experience or completing training. The change in entry requirements occurred in 2013, early in VTIP's history (Milper Message 13-046, 2013).

⁵⁰ The changes implemented by FA 59 (Strategist) illustrate a profession's behavior to insulate itself from attack. "Thus it is common in professions to create rigid entry standards, coupling extensive education with several levels of examination prior to formal entry into the profession. This is part of a structure of control that seems utterly advantageous to the profession. It protects recruitment, controls professional numbers (and consequently professional rewards), and guarantees a minimum standard of professional ability" (Abbott, 1987, p. 84).

⁵¹ An example of the cyber questionnaire, dated May 18, 2018, can be found at <https://smtc.dodlive.mil/files/2019/01/PPOM-18-037-Attachment-Cyber-Branch-Questionnaire-.pdf>, as of March 4, 2020. At the same time that it required the questionnaire, FA 29 also started requiring a personal letter and college transcript as part of a VTIP application, only to remove those two requirements with the next VTIP panel.

FA 46 and FA 57 present more interesting cases, as both have many captain positions. Both pursued strategies that lowered hiring standards, before ultimately reversing course and raising hiring standards. In each case, the key standard was whether an officer had completed a KD assignment prior to VTIP transfer.

In 2012, FA 46 (Public Affairs) required that all applicants had completed their KD assignment in their current branch. The next year, the functional area removed that requirement, lowering the hiring standard for the functional area (Milper Message 13-159, 2013). Four years later, in 2017, FA 46 raised its hiring standard to its 2012 level and again required that applicants had completed their KD assignment prior to transfer to FA 46 (Milper Message 17-055, 2017).

FA 57 (Simulations Operations) used a different strategy. From 2012 into 2014, the functional area stipulated that captains who transferred to FA 57 would be assigned to a company command position in Training and Doctrine Command (TRADOC) if the officer had not already completed a KD assignment. This command experience would occur before the officer filled an FA 57 position. In 2014, FA 57 eliminated this option and instead required that all applicants previously complete their KD assignment (Milper Message 14-175, 2014).

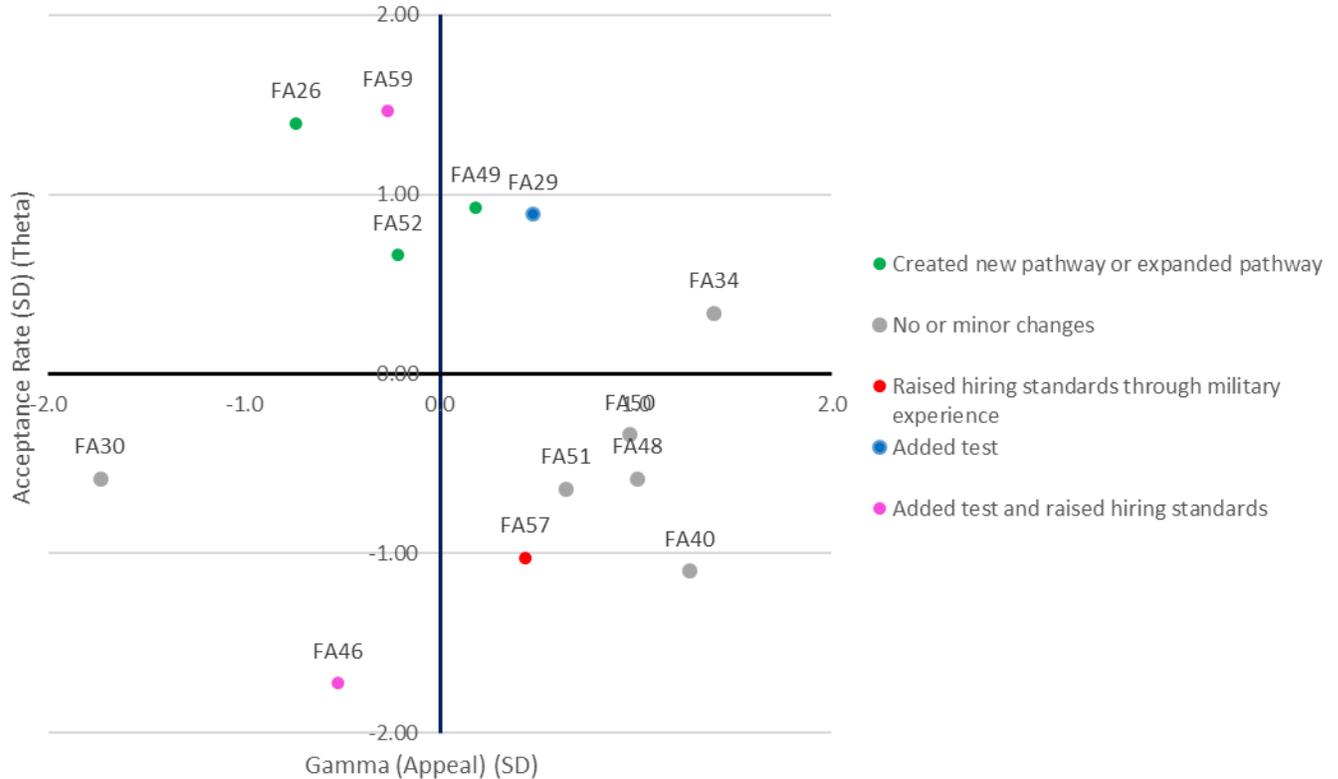
For FAs 46 and 57, these changes represent tradeoffs between competing goals. By raising hiring standards, the most intuitive goal is improved prospects for promotion, as well as the possibility of improved performance in training and in the job. The cost of such an action is the exclusion of many potential applicants, which in turn might lead to a downturn in the percentage of positions that can be filled.

Entry Requirements and the Relationship with Gamma and Theta

Career fields that combine high scores for *gamma* and low scores for *theta* behaved differently than career fields in the opposite situation. A functional area with relatively narrow appeal either added additional (often stringent and focused) entry requirements or created a pathway that appealed to a narrow subset of officers. For functional areas in which the pool of interested officers is limited but of enough quality, these changes either helped the functional area find additional qualified personnel with overlooked skills or helped the functional area refine its pool of applicants. Significantly, every functional with high scores for *gamma* and low scores for *theta* behaved in this way.

A functional area with broader appeal – that is, low scores for *gamma* and high scores for *theta* – often made no changes, and those that did typically narrowed the range of acceptable educational qualifications. Only one functional area with this *gamma* and *theta* combination – FA 57 – implemented a different entry requirement strategy.

Figure 4.12 Relationship between Entry Requirement Changes, Gamma, and Theta



SOURCE: Author's calculations

Functional areas also increased hiring standards in some circumstances. FA 59, with less need for captains, joined other similar functional areas in requiring that captains complete a KD assignment prior to transfer. FA 46 and FA 57, both with significantly lower theta but roughly average gamma – and many captain authorizations to fill – implemented more restrictive hiring standards for military experience.

Within the four broad categories of entry requirement changes (no change; alternate pathway; test; or military experience), two functional areas included changes from more than one category. FA 59 (Strategist) increased its military experience standards and required several screening assessments. FA 46 (Public Affairs) first lowered its military experience level and later raised it, while also recently requiring a new screening test. I will evaluate whether these differences produced results in the next section.

Did Changes to Entry Requirements Make a Difference?

Functional areas did change entry requirements, and in significant ways in some cases. Those changes might lead to any of several potential outcomes:

- Greater volume of qualified candidates if the entry requirements encourage application
- Lower volume of qualified candidates if the entry requirements discourage application
- Greater volume of candidates if the entry requirements encourage application

- Lower volume of candidates if the entry requirements discourage application

Any of these effects should influence the VTIP approval rate. Effects on the volume of qualified candidates changes both the numerator and the denominator, while effects on the volume of all candidates changes only the denominator. Of course, other influences might change the acceptance rate at the same time, such as a change to force structure necessitating more or fewer officers in the functional area.

Entry Requirements and the Approval Rate

In 2016, three functional areas introduced changes to their entry requirements for the 3rd Quarter Fiscal Year (FY) 2016 VTIP panel, providing the opportunity to compare changes in the acceptance rate for those functional areas with others during the same time frame.⁵² FA 49 (ORSA) started to require either a STEM undergraduate degree or a minimum quantitative GRE score of 153. FA 29 (Electronic Warfare) introduced a cyber questionnaire that tested technical knowledge. FA 59 (Strategist) mandated the completion of preparatory coursework before entering FA 59 training.

The 3rd Quarter FY 2016 VTIP panel provides a convenient frame for evaluating change, as most functional areas exhibited stability in their entry requirements within the four preceding and subsequent VTIP panels.⁵³ Those that made changes were modest, except for FA 59⁵⁴. Table 4.2 displays the statistical significance of the changes.

Table 4.2 Change to approval rate after entry requirement change

| Career Field | Earlier applicants | Earlier approvals | Earlier approval rate | Later applicants | Later approvals | Later approval rate | Two-tailed Z-Score | p-value |
|--------------|--------------------|-------------------|-----------------------|------------------|-----------------|---------------------|--------------------|------------|
| FA 29 | 55 | 19 | 35% | 91 | 61 | 67% | -2.58 | 0.00988*** |
| FA 30 | 62 | 27 | 44% | 78 | 31 | 40% | 0.48 | 0.63122 |
| FA 34 | 99 | 51 | 52% | 92 | 47 | 51% | 0.14 | 0.88866 |
| FA 40 | 147 | 48 | 33% | 214 | 114 | 53% | -3.75 | 0.00018*** |
| FA 46 | 137 | 43 | 31% | 70 | 34 | 49% | -2.54 | 0.01108** |
| FA 48 | 348 | 161 | 46% | 278 | 132 | 47% | -0.25 | 0.80258 |

⁵² The information technology functional areas (FA 24 and FA 53) also introduced changes at this time. Those functional areas would soon merge into FA 26. Because of that complication, I exclude them from this analysis.

⁵³ The four preceding VTIP panels occurred in 2nd Quarter FY 2014, 4th Quarter FY 2016, 2nd Quarter FY 2015, and 1st Quarter FY 2016. After the 3rd Quarter FY 2016 panel, the subsequent VTIP panels occurred in 1st Quarter FY 2017, 3rd Quarter 2017, and 1st Quarter 2018.

⁵⁴ FA 59 started to require a writing sample and a graduate school skills diagnostic test with the 4th Quarter FY 2014 VTIP panel.

| | | | | | | | | |
|-------|-----|-----|-----|-----|-----|-----|-------|-----------|
| FA 49 | 180 | 94 | 52% | 155 | 102 | 66% | -2.59 | 0.0096*** |
| FA 50 | 76 | 35 | 46% | 135 | 66 | 49% | -0.42 | 0.67448 |
| FA 52 | 62 | 38 | 61% | 89 | 53 | 60% | 0.12 | 0.90448 |
| FA 57 | 49 | 15 | 31% | 174 | 76 | 44% | -1.63 | 0.1031 |
| FA 59 | 68 | 30 | 44% | 88 | 57 | 65% | -2.62 | 0.0088*** |
| FA 51 | 473 | 209 | 44% | 434 | 205 | 47% | -0.91 | 0.36282 |

NOTE:

** significant at 0.05 level

*** significant at 0.01 level

The three functional areas that introduced more stringent entry requirements experienced statistically significant increases in their VTIP approval rates. This is a bit of a paradox, especially since two of the three saw increases to both the number of applicants and the number of approvals. After all, increasing an entry requirements imposes a cost on prospective applicants. Some will now not meet the entry requirement, while others will not want to try to meet the entry requirement.

To resolve this paradox, consider some of the mechanisms through which entry requirements either encourage or discourage applications. Entry requirements can serve many functions:

- Provide greater insight into the type of skills, experience, or attributes required
- Provide greater insight into the degree of fit between a potential applicant and the career field, including in comparison to a potential applicant's current career field
- Provide greater insight into the qualities shared by fellow co-workers in the career field

A hypothetical case might yield some insights. Let's imagine a cohort of officers considering whether to apply to a functional area through VTIP. The officers will have some information about the functional area, but can only imprecisely estimate the extent to which the functional area will be a better fit than their current branch. Those that suspect the functional area will be a better fit might be likely to apply through VTIP, while those that expect to be worse off will not. Officers will also consider the qualities of their future co-workers, gleaned from their personal experiences and other information sources. Officers probably want high quality co-workers and an expectation that they can keep pace with their future co-workers.

Changes to entry requirements influence the estimations made by the hypothetical officer cohort. Additional tests improve the cohort's ability to predict the fit between an officer and the career field. In some cases, officers might realize that they are now a better fit than previously expected; the opposite will also be true in other cases. Similarly, if the tests are viewed as a significant requirement, an officer can expect that only high-quality applicants will join the functional area. If an officer expects to perform at a level commensurate with the new peer group, the officer might apply. As a result, two conditions drive whether a hypothetical officer

might apply: the functional area is a better fit than the current branch and the officer is a fit with peers in the functional area.

A model will illustrate how these two conditions drive the application and acceptance rates when entry requirements change. I will use the following parameters:

- 100 officers interested in a functional area, with normally distributed talent (mean = 10, standard deviation = 2)
- The functional area can receive up to 25 officers through this VTIP panel
- A VTIP panel will rank order officers for each functional area based on their observed productivity and approve the transfer of those who exceed a quality threshold (set at 10) *and* are in the top 25 for the functional area
- Officers will also have a level of productivity in the new functional area that is correlated (at 0.5 in the model) with the observed productivity
- Officers can estimate their level of productivity in the new functional area; their estimation can change based on a change in entry requirements
- Officers can estimate their peers' level of productivity in the new functional area; their estimation can change based on a change in entry requirements
- Officers will apply to the functional area if:
 - their own estimated level of future productivity exceeds their observed productivity (i.e. they estimate they would perform better in a different career field) *and*
 - their own estimated level of productivity equals or exceeds that of their peers in the functional area (i.e. they estimate they would perform at least as well as their average new peers).

Using these parameters, imagine that a functional area increases entry requirements. Before the change, officers could estimate their future productivity at .75, meaning that an officer whose actual productivity in the functional area is 16 would expect a productivity of 12. Officers will also have an expectation of the level of productivity of their peers, which might be middling (say, equal to 10) or could be high (equal to 12). With the new set of entry requirements, officers can now better estimate their future productivity, increasing from .75 to .85 as an example. Officers might expect more productive peers, as well. Table 4.3 shows the results after a simulation.

Table 4.3 Modeled Influence of Entry Requirement Changes on Approval Rate

| | Before entry requirement change (Estimation factor = .75) | | After entry requirement change (Estimation factor = .85) | |
|--------------------------------|--|------------------------------------|---|------------------------------------|
| | Peers average productivity = 10 | Peers average productivity = 12 | Peers average productivity = 10 | Peers average productivity = 12 |
| Total applications | 35 | 9 | 70 | 37 |
| Total accepted for transfer | 16 | 7 | 25 | 23 |
| Approval rate | 44% | 77% | 36% | 63% |

The shaded columns of Table 4.3 illustrate how a change in entry requirements might boost the quantity of applications and the approval rate. Two conditions must be met: the entry requirements must improve the estimation of future productivity and improve the estimation of the peer group’s productivity. Improved estimation of one’s own capability enlarges the pool of potential applicants, which left unchecked will decrease the approval rate. Working simultaneously, higher expectations regarding the future peer group tempers that effect by discouraging applications from less qualified officers.

Entry Requirements and Applicant Volume

FA 46 (Public Affairs) changed its entry requirements in 2013, moving from requiring that all applicants previously complete a KD assignment to not requiring KD experience of applicants. In 2017, seven VTIP panels later, FA 46 returned to requiring KD experience of applicants. This policy change allows the comparison between the relative volume of applicants over two periods. As data is incomplete in 2012-2013, I will focus on the periods from 2014-2017 and 2017-2019.⁵⁵

I will use *gamma* to measure the relative volume of applications. During the period when it had lower hiring standards (2014-2017), FA 46 was average: 0.23 standard deviations (SD) from the mean. For every window of opportunity to apply, on average 4.5 officers applied. With the higher standards in 2017-2019, FA 46 saw its relative volume of applications fall dramatically. The change in *gamma* is stark, falling from 0.23 SD to -2.14 SD. For every window of opportunity to apply, only 1.5 officers applied. Only FA 29 (Electronic Warfare) saw a similar change.⁵⁶

⁵⁵ FA 46 first removed mandatory KD experience in the VTIP panel for the 4th Quarter, Fiscal Year 2013. KD experience returned as a mandatory hiring standard with the VTIP panel for the 3rd Quarter, Fiscal Year 2017.

⁵⁶ FA 29 started to require completion of its cyber questionnaire with the 3rd Quarter, Fiscal Year 2016 VTIP panel. After experiencing significant growth in the volume of applications for the first two panels after that change, applications to FA 29 declined precipitously.

FA 46’s use of a hiring standard likely accounts for a steep decline in the relative quantity of applications. When non-KD complete captains could apply to the functional area, the pool of potential applicants included all captains. KD complete officers are just a subset of all officers.

Will a functional area always see a decline in applications with the introduction of a new hiring standard? In most circumstances, the intuitive answer would be ‘yes’. More stringent entry requirements will prevent those interested but now ineligible from applying. Those individuals might apply later, but they also might leave the service, decide to stay in their current branch, or apply to a different functional area. If the new hiring standard carries significant signaling power or provides better insight about the quality of the match between an officer and a functional area, a more stringent entry requirement might boost applications, or at least mitigate the decline.

It is too soon to tell if FA 46’s addition of another assessment – a writing requirement introduced in 2019 – will fit this latter category. A required writing sample will discourage applications from those who do not wish to write. It might also attract applications from those who want to join a functional area that encourages writing. Future analysis will help determine if the policy works well for a functional area that has struggled to attract applicants of late.

Why Did Entry Requirements Change Relatively Little?

Entry requirements to functional areas changed between 2012-2019, with a cohort of functional areas introducing alternate pathways and others introducing modest restrictions. However, several FAs made no significant changes during the period, and those that did typically made only one change, as reflected in the Table 4.4.

Table 4.4 Changes to Entry Requirements by Functional Area

| Functional Area | 2012 | | | | | Post 2012 Changes | | | |
|--|---------------------------------|----------------|-------------|-------------|-------------------|---------------------------------|------------|-------------|----------------|
| | Survey, test, or writing sample | GRE scores | STEM degree | KD complete | Alternate pathway | Survey, test, or writing sample | GRE scores | STEM degree | KD complete |
| Low interest functional areas (low quantity of applications and low approval rate) | | | | | | | | | |
| FA 30 | | | | | | | | | |
| FA 46 | | | | X | | X | | | X ^a |
| FA 53 ^b | | | X | | X | | | | |
| Narrow interest functional areas (low quantity of applications and high approval rate) | | | | | | | | | |
| FA 24 ^b | | X ^c | X | | X | | | | |
| FA 29 | | | | | | X | | | |

| | | | | | | | |
|--|----------------|---|---|---|--|----------------|----------------|
| FA 49 | | | X | X | | X | X ^d |
| FA 52 | X ^e | X | X | X | | | |
| FA 59 | X | | | | | X ^f | X |
| Wide interest functional areas (high quantity of applications and low approval rate) | | | | | | | |
| FA 34 | X | | X | | | | |
| FA 40 | | | | | | | X ^g |
| FA 48 | X | | X | | | X | |
| FA 50 | | | X | | | | |
| FA 57 | | | | | | | X |
| FA 51 | | | X | | | X | |

NOTE:

^a Required KD complete officers in 2012, allowed non-KD complete officers in 2014, and again required KD complete officers in 2017

^b Merged into FA 26; statistically became a narrow interest functional area

^c GRE scores required only if lacking a STEM degree

^d STEM degree or minimum score on GRE required

^e GRE scores required only if undergraduate grade point average was below 3.0

^f Three separate tests employed (graduate skills diagnostic; writing sample; attribute survey)

^g STEM degree preferred, but not required

Because every functional area is responsible for attracting enough qualified applicants, one could expect to see changes to entry requirements. In some cases, entry requirements could be eased to increase the pool from which to select new members. In other cases, tighter requirements could exclude the marginal candidate. New screening devices could be developed, implemented, evaluated, and discarded or maintained. What I found, however, is a universe lacking in much variation. Why did we not see significantly increased standards for entry?

Factors Suppressing Entry Requirement Changes for All Functional Areas

All functional areas face forces that discourage changes to entry requirements. Some of those forces include:

- Maintaining egalitarianism
- The high cost of developing new entry requirements
- A generalized lack of creativity or sense of experimentation

Changing entry requirements creates different experiences for officers joining a functional area. The shared experience of meeting similar requirements supports the idea of egalitarianism, an important consideration in the Army (Allen and Woods, 2015). While officers already have dissimilar aptitudes for a given functional area, and thus different likelihoods of approval into a

functional area, those differences are hidden. Changing entry standards make those differences more explicit. An effort to create an egalitarian environment suppresses change.

New entry requirements are not costless, requiring investments of time and other resources to develop and implement. Many of the changes – such as requiring GRE scores – are among the cheaper changes to make. By comparison, developing an original screening method is especially costly, which partially explains why only three functional areas developed unique screening tools during the first 10 years of VTIP.

Functional area proponents might be plagued by a lack of creativity or willingness to experiment. Requiring a recommendation from a current member of the career field was not formally used by a functional area. FAO, which had long gathered additional biographical data in its FAO questionnaire, did not inspire other functional areas to mimic the process. Functional areas that valued a STEM degree did not add entry requirements that assessed whether applicants retained any STEM knowledge several years after graduation.

Evidence of experimentation – trying something new and changing it - is very limited. FA 46 (Public Affairs) changed its hiring standard for military experience. FA 29 (Electronic Warfare) required college transcripts and a personal letter for exactly one VTIP panel. FA 52 (Nuclear and Counterproliferation) made changes to its standards for grade point average and GRE score, before adjusting its standard two VTIP panels later. Other than those cases, little evidence of experimentation or fine-tuning exists.

Factors Suppressing Entry Requirement Changes for Wide Appeal Functional Areas

For functional areas with wide appeal, the status quo appeared to be sufficient. Such functional areas made few if any changes to their entry requirements after 2012. FAs 50 (Force Management) and 34 (Strategic Intelligence) did not institute new changes. FA 40 (Space Operations) stated that STEM degrees were merely preferred and FA 57 required KD complete officers. Two other functional areas started requiring GRE scores, without requiring higher scores than an Army-established minimum.

Job performance might also be correlated “enough” between an old career field and a new functional area that a functional area can select the top-performing applicants based on historic job performance. For functional areas that already receive many applications and can be selective, those career fields might receive adequate interest from top performing officers. Those same career fields might assume that top performing officers will do well in the new functional area. If performance between multiple career fields is correlated to a large degree, emplacing entry requirements becomes less necessary.

Related to the above point, wide appeal functional areas likely already receive top performing officers through the VTIP panel. Previous performance as reflected in officer evaluation reports largely explains who is selected by the VTIP panel, rather than the match quality between the applicant and a FA. If the VTIP panel places little weight in the match

quality, emplacing additional requirements to improve the match quality would be wasteful. Such efforts would be undervalued by the VTIP panel, if not completely ignored.

Factors Suppressing the Alternate Pathway Option for Some Functional Areas

While several functional areas implemented an alternate pathway, the structure of existing entry requirements precluded others from adopting a similar framework. In its classic form, the alternate pathway averts educational standards for those with important KSAs. Some notable functional areas did not use educational requirements, whether as a hiring standard or as a screening device. The alternate pathway becomes impractical, if not impossible, in such circumstances. Without educational standards, FAs 30 (Information Operations), 46 (Public Affairs), and 57 (Simulations Operations) could not make use of an alternate pathway even though attracting sufficient applicants can be a challenge.

Summary

In this chapter, I show how largely structural exogenous factors change functional areas over time. Functional areas vary widely across several dimensions: in the percentage of positions in the operational force; in the size of the functional area; in the opportunity to attend graduate school; and in the stability of the functional area's promotion peers. While change to some degree across occurred across every functional area, those with a high percentage of positions in the operational force often shrank relative to the Army and saw changes to the career field's structure. Those same functional areas also did not show the same natural relationship between *gamma* and *theta*, which suggests some explanatory power: career fields that offer a smaller proportion of positions away from operational assignments and offer fewer graduate school opportunities might struggle to attract qualified applicants.

Functional areas likewise experience different rates of success in promotion to the next higher rank. Most functional areas see their members promoted to the next rank at rates at or above the overall Army; for those with a higher percentage of positions in the operational force, promotion rates often fell below the Army's.

Exogenous factors like structural considerations are outside of a functional area's control. Within a functional area's control are the entry requirements relayed to interested officers in Milper messages. Since the advent of VTIP, those entry requirements have changed in explainable ways. For those functional areas with narrow appeal, additional intensive screening devices were employed or alternate pathways were developed. For those functional areas with broader appeal, low-cost screening devices were employed if changes were made.

5. Policy Implications

In this chapter, I will discuss whether VTIP meets its primary obligation of providing adequate manpower to functional areas. I will also explore related topics: the implications of central features of VTIP; the implications of career field behavior; and the implications of divergent officer preferences. The trends that I have established in officer and career field behavior might also apply to other policies in which officer career preferences interact with organizational manpower needs: namely, the policy of determining officer assignments through ATAP.

Overcoming a Shortage of Qualified Applicants

VTIP is the program that the Army uses to provide manpower to functional area career fields. Does VTIP reliably provide manpower to functional areas? Of course, it depends: on the functional area’s breadth of appeal; on the attractiveness of the functional area; on the KSAs required by the functional area; and on the minimum quality desired by functional areas and enforced by the VTIP panel.

If VTIP had a market mechanism, the labor market would clear. If the market were to clear, functional areas would receive officers up to the point that they are no longer acceptably capable, and officers would join functional areas up to the point that they are no longer better off. Missing from VTIP is a floating mechanism that incentivizes applications when a functional area is short personnel or discourages them when full. The same mechanism could encourage officers to invest in KSAs that are needed but in short supply, at the expense of KSAs that might be needed but already are in sufficient quantity. There are no prices in VTIP; prices signify where more (or less) investment is needed. Instead, about half of officers who apply to VTIP are not approved, while some functional areas suffer shortages for captains and majors, as shown in Table 5.1 below.

Table 5.1 Functional Area Shortages for Captains and Majors (O-3 and O-4)

| Career field | Authorized positions | TTHS allowance ^a | Projected personnel ^b | Projected available personnel (projected personnel minus TTHS allowance) | Projected available personnel as proportion of authorized positions ^c |
|-----------------------------------|----------------------|-----------------------------|----------------------------------|--|--|
| FA30 Information Operations | 185 | 26 | 171 | 145 | 78% |

| | | | | | |
|--|-----|-----|-----|-----|------|
| FA57 Simulation Operations | 207 | 27 | 194 | 167 | 81% |
| FA26 Information Network Engineering | 636 | 92 | 644 | 552 | 87% |
| FA46 Public Affairs | 201 | 27 | 209 | 182 | 91% |
| FA59 Strategist | 178 | 39 | 201 | 162 | 91% |
| FA 49 ORSA | 318 | 82 | 382 | 300 | 94% |
| FA 52 Nuclear and Counterproliferation | 125 | 35 | 162 | 127 | 102% |
| FA 51 Acquisition | 824 | 128 | 974 | 846 | 103% |
| FA 34 Strategic Intelligence | 139 | 33 | 183 | 150 | 108% |
| FA 48 FAO | 353 | 287 | 683 | 396 | 112% |
| FA 40 Space Operations | 226 | 35 | 303 | 268 | 119% |
| FA 50 Force Management | 124 | 16 | 191 | 175 | 141% |

NOTE:

^a The Trainees, Transients, Holdovers, and Students (TTHS) allowance is a five-year rolling average of personnel, typically in formal training courses, educational assignments (school), or moving between assignments

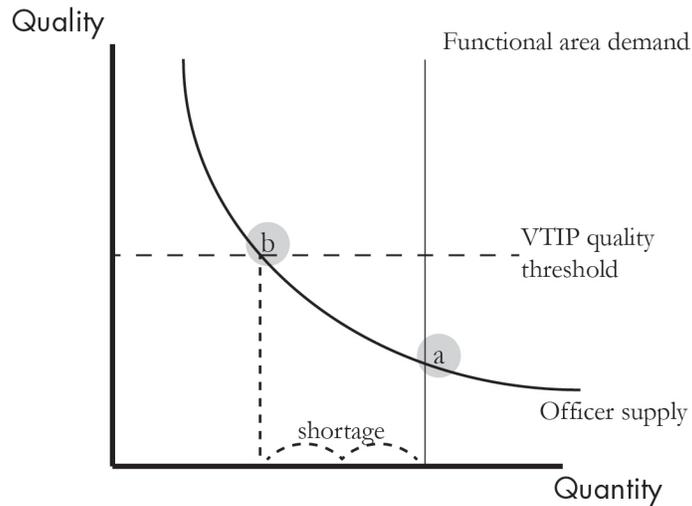
^b Projected personnel are officers expected to remain in the Army after September 1, 2020; the estimate was developed in June, 2020

^c Functional areas, Army Human Resources Command, and other Army interests have wide latitude on how many officers are in a TTHS status and for how long; graduate school, for instance, can be delayed

SOURCE: Strength by Functional Area, U.S. Army Human Resources Command, received on June 5, 2020.

The structure of VTIP introduces constraints that prevent this labor market from clearing; the inability of supply to match demand defines an inefficient labor market. Even though a career field might be short of personnel, such a shortage might be acceptable. A desire to enforce a minimum level of quality (in qualification and general level of performance) is institutionally important. The quality threshold sets such a minimum level, below which an officer cannot transfer. To illustrate, consider a market where officer quality (the sum of expected future performance and relevant KSAs) is on one axis, with officer quantity on the other axis.

Figure 5.1 Supply of Officers with Quality Threshold



The supply of officers willing to transfer will be downward-sloping, reflecting the decreasing availability of quality. The demand for officers by functional areas, at least in the near-term, will be inelastic and fixed. At point (a), the supply of officers and the demand for officers will meet, clearing the market.

The VTIP panel uses a quality threshold, refraining from approving the transfer of officers below that level. The point at which the threshold intersects with the officer supply, labeled in the figure as point (b), determines the quantity of officers whose transfers are approved. A shortage emerges. Approving officers at the original point that supply meets demand might not be in a functional area's interests, if at that point the capability is insufficient to the job.

The quality threshold serves a well-intentioned purpose. Without it, functional areas might receive officers who are unsuitable for the functional area or substantially at risk of failing selection for promotion;⁵⁷ the future prospects for the functional area might suffer if promotion rates fall substantially below the Army's average.⁵⁸ In many years, officers who twice fail of selection for promotion to major or lieutenant colonel will be involuntarily separated from the military in accordance with 10 United States Code (U.S.C) 632, although this varies substantially

⁵⁷ Doeringer and Piore (1971; pp. 102-106) describe the hiring process as a tradeoff between two types of hiring mistakes, borrowing the language of statistical probability. Failing to hire a qualified candidate is a Type I error, while hiring an unqualified candidate is a Type II error. Hiring standards and screening devices vary in capability of limiting Type I and Type II errors, with tradeoffs between the error types. The use of the quality threshold, with its focus on military experience and performance as well as educational qualifications, likely limits Type II errors for functional areas, at the expenses of Type I errors.

⁵⁸ Acemoglu and Robinson (2001) developed a model to explain inefficient redistribution and their insights might be applicable here. Labor unions lobby for higher firing costs to prevent layoffs, as fired workers might move to other industries and thus lower union membership. Functional areas might restrict entry from officers at risk of promotion failure, even if those officers might perform adequately well in the near-term. Divergent promotion rates could lower the functional area's influence in the future. Thus, functional areas might behave in a way that maintains future influence, even at the expense of improved near-term prospects.

over time (Robbert et al., 2019, p. 46). Functional areas would lose any investments made in training in those circumstances.

Nevertheless, the quality threshold fails to prevent disparities in promotion rates, though the disparities might be institutionally acceptable. The functional areas that receive the fewest applicants relative to their size often see the lowest promotion rates to major and lieutenant colonel among the functional area career fields (see Figure 4.9 and 4.10). For those in this situation, the functional areas see the worst of both worlds: not enough approved transfers and a low promotion rate.

Military Experience as Insurance Against Promotion Failure

To combat a low promotion rate, a typical solution employed across several functional areas is to require a high level of military experience prior to transfer (Interview 13, 2020). This experience – most commonly as a captain-level commander – when accompanied by high-quality performance evaluations, helps ensure that transferred officers qualify for promotion to the next rank. This focus on a subset of military experience (captain-level command) likely oversupplies the functional area with that background. In many positions, officers will draw upon their experience from command. However, and especially true for positions outside of the operational force, positions might be better filled by officers with a different set of military experiences. A functional area could benefit from acquiring officers with diverse experiences, rather than focusing on one defined experience.

Determining the right mix of KSAs that provides a functional area with a broad pool of expertise is challenging. Some mixture of job analysis⁵⁹ combined with an understanding of which KSAs are possible in the applicant pool is required; both present a challenge for functional areas that are constrained by time and resources. Further, the piecemeal approach of acquiring officers through VTIP, where individual applications are approved on their merits irrespective of the KSAs already in the career field, limits the ability to deliberately construct a cohort of officers.⁶⁰

Even if a functional area could select the mixture of military experience that provides the right blend of KSAs for all positions, the functional area might still prefer to overweight command experience. Officers with command experience might be a safer bet for promotion, all other things being equal. A degree of promotion certainty can be an important consideration.

⁵⁹ In my usage, “job analysis refers to a broad array of activities designed to discover and document the essential nature of work” (Brannick, Cadle, and Levine, 2012, p. 119). A job analysis results in two outcomes: “a job description and a list of job specifications” (Brebaugh, 2017, p. 13).

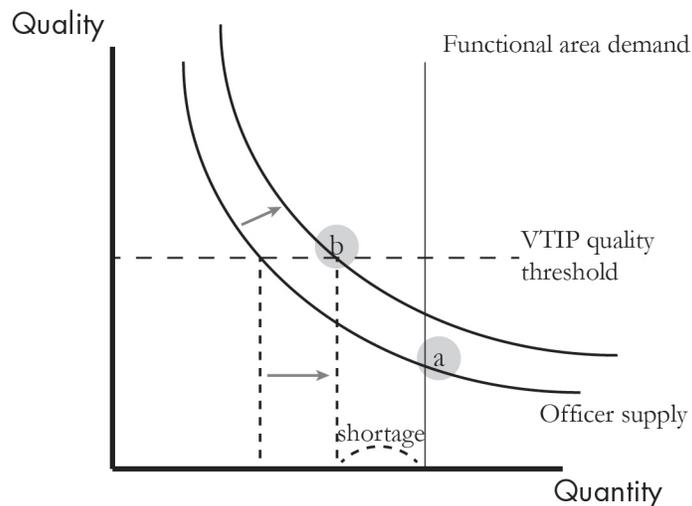
⁶⁰ The movement toward the Army Talent Alignment Process has energized the documentation of KSAs. The inventory of KSAs within a population of officers – at least self-identified KSAs – is likely in the near future. Arguably, a more significant challenge will be for career fields to understand which KSAs are important, especially when only some officers need to possess certain KSAs.

Various Options for Matching Supply with Demand

Functional areas could attempt to match their force structure to the supply of qualified applicants; for some functional areas, this would require eliminating positions. Instead, most functional areas grew relative to the Army over the last decade (recall Figures 4.3 and 4.4). Most organizations prefer to grow rather than the shrink.

Faced with a potential shortage of personnel, functional area proponents could attempt to encourage more applications from qualified candidates, shifting the supply curve to the right as in Figure 5.2.

Figure 5.2 Increased Supply of Officers with Quality Threshold



One such method would be to improve one or more of the facets of job satisfaction. Unfortunately, proponent offices lack many options and influential factors are largely exogenous. The force structure largely determines the type of co-workers and supervisors, which cannot be easily altered; the nature of the work is likewise influenced by the force structure. The pay system, tied to promotion and longevity, is standardized across the military and accession or transfer bonuses are used sparingly. The promotion system is likewise standardized and centralized, with changes in competitive category possible but rare.

Some opportunities to shape perceived job satisfaction avail themselves. Functional areas can emphasize graduate school attendance, although the growth in graduate school utilization billets was very low for some functional areas. They might also promulgate new entry requirements, which can be a form of advertising. As we have seen though, most functional areas kept entry requirements stable over time.

There likely exist officers who are interested in a transfer to a functional area, but lack the traditional suitability associated with the functional area. As I have shown, many functional areas require certain academic backgrounds as a prerequisite, and indeed the Army's policy strongly considers civilian education. This focus on civilian education sets a floor on who might be

qualified to transfer. To grow the pool of applicants (shifting the supply of officers to the right), the Army has some options. First, it should ensure that civilian education is an important predictor of success in a functional area; it may or may not be the case, especially when officers left school several years ago. In addition, the Army could incentive cadets to pursue academic fields that are valuable and undersupplied or use retention incentives to keep officers with underrepresented educational backgrounds in the force. Finally, the Army could explore substitutes for undergraduate education, which some functional areas already do with their alternate pathways.

Functional areas can also engage in overt recruiting, encouraging applications from those not initially predisposed to apply. Such recruiting could be effective over multiple time periods, encouraging applications from those who are qualified and encouraging the development of qualifications from those who are merely interested. The recruiting can take many forms. Assignment officers at Human Resources Command, with extensive access to service records, performance files, and education backgrounds, can and already do contact individuals or broad swaths of the population. Assignment officers also have many other responsibilities against which recruiting must compete. The proponent office, though with less access to personnel records, can likewise recruit individuals. A functional areas might also rely on its current members to recruit, identifying good prospects from among those with whom they serve.

In the future, functional areas could make additional changes to recruiting. One such change, recently implemented as a pilot program called the Assured Functional Area Transfer Program (AFAT), would identify candidates for the functional area prior to commissioning. Using FA 40 (Space Operations) as the test case, “AFAT allows for the identification of cadets from ROTC and USMA who will gain operational experience and possess FA40 specific talents and education; specifically, Science, Technology, Engineering, or Math (STEM) degrees” (Mabry, 2019). Officers would transfer to FA 40 around the 3-4-year point in a career, but officers who are satisfied in their current branch would be allowed to remain in their current branch. The Army is considering expanding AFAT to other functional areas (Longino, 2020).

While AFAT focuses on identifying cadets for a functional area, recent changes to the Defense Officer Personnel Management Act (DOPMA) provide more flexibility to the Army to recruit officers of much more civilian experience. Added to DOPMA as part of the Fiscal Year 2019 National Defense Authorization Act, 10 U.S.C. 533 allows the military services to award constructive credit up to the rank of colonel for “education, training, or experience.” In theory, functional areas could then expand recruiting to the universe of civilian talent. In practice, it is unclear where the recruiting and vetting responsibility would lie or whether functional areas would be willing to sacrifice their reliance on military experience as an important hiring standard.

Applying Flexibility to Minimize Manpower Gaps

Actions taken to date – from limited structural changes to changes to entry requirements to recruiting techniques – have still left nearly every functional area with shortages. In a discussion with a knowledgeable insider, I asked if the quality threshold was ever *not* the limiting factor. Only rarely in recent years, and only in the case of FA 40 (Space Operations), did a functional area receive more applications that met the quality threshold than it had room for (Interview 13, 2020). Typically, a qualified applicant – one who possesses some traits important to the functional area and has the minimum track record suggesting promotion to the next rank – will be approved for transfer. The quality threshold is too high for most functional areas, at least much of the time.

Merely lowering the quality threshold might exacerbate shortages if done in isolation. If the quality threshold were lowered to the point that most functional areas were full over time, the promotion rate might plummet. This in turn could reduce the attractiveness of functional areas and increase its training costs, if not threaten its entire viability.

The golden ideal is to establish a quality threshold that is forward-looking and predictive, identifying those officers who, in a new career field and with new training and education, will be much more productive than in the past. Arguably, this strategy would be most important for functional areas like FA 30 (Information Operations) or FA 46 (Public Affairs), which have struggled to attract applicants and thus must carefully screen those they do receive. However, those same functional areas have the fewest tests as part of their entry requirements. Without screening devices to separate the gems from the rubble, and an empirical basis for linking the screening to future job performance, functional areas are left in the dark.

Finding those hidden gems – officers whose low performance would improve substantially in a new career field – would be a non-zero-sum gain for the Army. Had those individuals remained in their current branch, they would have continued to underperform. Moved to a functional area, officers fitting this description would improve the average performance of both the functional area (through addition) and the original branch (through subtraction). Unfortunately, even these gains might run afoul of a promotion system that will consider the entirety of a performance record, including in different career fields. For those who have become much more productive in a new career field after low performance earlier, only those who can establish a long track record in the new career field can expect a reasonable opportunity for promotion. Thus, the hidden gems must be discovered years before promotion consideration, which creates a small window for discovery.

Better screening, or screening that consistently identifies those who will be successful in new roles, can improve the performance of both popular and less popular career fields. As an illustration, consider this small model:

- 100 officers, with normally distributed talent
- Their talent manifests itself in performance ratings in their current career field

- They will transfer to a new career field (either CF0 or CF1) and 2/3 of officers prefer CF0 (determined randomly)
- 25 officers will transfer to CF0 and 25 officers will transfer to CF1; the remainder will stay in their current career field
- Their performance in the new career field is correlated with their performance in the old career field at 0.5
- Their performance in the new career field could be estimated based on screening devices (a notional combination of tests).

Armed with this information, three potential avenues for selecting individuals are readily apparent. First, a VTIP panel could select the top 25 for each career field based on the observed performance in the current career field. Alternatively, the VTIP panel could approve the transfer of the top 25 in expected performance for the next career field; this plan would only consider the results of screening devices and not past performance. Finally, the VTIP panel could approve the transfer of the top 25 who would gain the most from a transfer.

The first option would see a slightly higher level of talent in the popular CF0 than in the less popular CF1 and a steep drop-off in the talent level for the current career field. Intuitively, this is obvious: selection based on performance in the current career field will leave the less capable individuals in the current career field. The results of a simulation show:

- CF0: 0.4 SD improvement in talent compared to population mean
- CF1: 0.3 SD improvement in talent compared to population mean
- Current CF: -0.7 SD decrement in talent compared to population mean.

The second option, which selects for future performance based on screening devices, would improve the level of talent in both CF0 and CF1 compared to the first option. For those not selected, their average talent in the current career field is significantly higher than under the first option, though the average talent would decline. The results of a simulation show:

- CF0: 0.5 SD improvement in talent compared to population mean
- CF1: 0.4 SD improvement in talent compared to population mean
- Current CF: -0.3 SD decrement in talent compared to population mean.

The final option selects individuals who would have the largest gains in productivity by switching career fields. The results of a simulation show:

- CF0: 0.4 SD improvement in talent compared to population mean
- CF1: 0.3 SD improvement in talent compared to population mean
- Current CF: 0.3 SD improvement in talent compared to population mean.

The use of screening devices improves functional areas, if the screening device provides insight into future productivity. Depending on how the screening device informs selection processes, every career field – including those that are losing people to functional areas – could see improvements.

Returning to current practices, many officers who apply to VTIP do not meet the quality threshold. The pile is quite large; the overall VTIP approval is only about 50 percent. How might we improve the utilization of these officers? Currently, the approach is to leave them in their current branch. Presumably, some will acquire the quality markers necessary for promotion, but many will not. While their own assessment of their situation leads them to seek a new career field, the Army's assessment of their potential leaves them in their current career field.

Ideally, officers from across the performance spectrum would be interested in the flexibility to serve in a functional area. I have some reason to doubt that this will be the case. Officers entering functional area eligibility soon might be better suited for their branch than earlier cohorts due to investments made in talent-based branching. At present, officers ill-suited for their current branch (as evidenced by a low level of performance) make up a majority of applicants to over half of the functional areas. Conversely, less than half of the applicants have performed well enough to date to ensure a reasonable chance at promotion. Those at risk of failure of selection for promotion are over-represented among VTIP applicants. With primary zone promotion rates around 75 percent to major on average, the VTIP approval rate of about 50 percent indicates that VTIP draws from a performance distribution that is lower than average.

Why would officers who are less likely to be promoted be more likely to apply to VTIP? At the core, functional areas offer a different type of work (staff work outside of operational commands), a different type of preparation (often graduate school), and potentially different post-military employment prospects. Arguably, the type of work might be the key component. For officers who are not thriving compared to their peers in environments that emphasize command, a change to a different type of work would be attractive. Functional areas give members a chance to pursue meaningful work without serving as commanders. Importantly, they can find work without serving in organizations dominated by those seeking to command. Functional areas place them where they might be more likely to thrive, or at least they could think so.

Such a trend could bode ill for assignment markets like ATAP. Force structure and the related basing decisions take numerous factors into account, but the preferences of officers might not be a considered variable. The availability of positions is exogenous to officers' preferences. Those preferences, in turn, are probably somewhat predictable based on past performance. Those who have succeeded to date will likely prefer different assignments compared to officers who have experienced less success; as is the case in VTIP, so too may be the case in ATAP.

Implications of Diverging Preferences when Correlated with Performance

If officers' preferences cluster based on their past performance, the Army will find itself with a classic "too many" and "too few" policy problem. Too many officers will prefer the same type of work, while too few will prefer other types of work. For officers with strong past performance, assignments consistent with traditional notions of success and standard career paths

will be preferable. They will likely avoid, on average, less traditional assignments. Just as officers who exceed the quality threshold are under-represented among VTIP applications, so too will they be under-represented in their preference for less traditional assignments. Conversely, officers who have fewer indicators of quality past performance will be more attracted to less traditional job postings.

Geographic differences might also potentially lead to clustering. In its first wide-spread use of ATAP, the Army saw divergent preferences based on location. Some locations, including Europe, Hawaii, Colorado, Washington state, and the national capital region, saw many more officers annotate a unit in those locations as a number one choice than there were available assignments (i.e. five assignments available, but eight officers listed it as a number one choice). Conversely, other locations – including South Korea, Fort Bliss (near El Paso, Texas), Fort Drum (north of Syracuse, New York), and Fort Riley (Kansas) – saw the opposite (Army Human Resources Command, slide 12, 2020).

Such clustering creates two challenges for an organization. First, different organizations might see substantial differences in the capability of its members. In short, some organizations will not receive particularly capable officers, even though those organizations need capable officers.⁶¹ The mission of those organizations might be important, but the organization might not receive the right type of manpower to be successful. Second, the Army might not develop the type of skills and experiences it needs for the future. If officers who are likely to be promoted avoid certain types of work, the Army will have a shallow bench in the future of officers who have ever done that type of work.

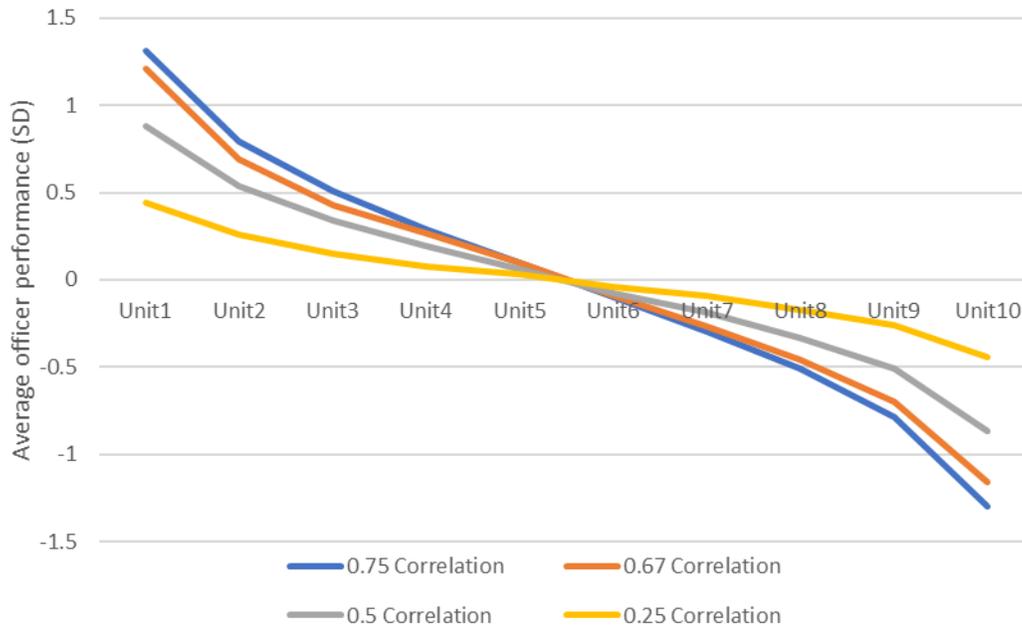
ATAP contains a mechanism that, unlike VTIP, ensures that the market clears. In the population of officers, every officer must participate from time to time in ATAP. Once told to participate, an officer is locked into the market. If 100 officers participate in ATAP, 100 officers will be matched with a job. In VTIP, 100 eligible officers do not need to participate. However, just because the market clears does not mean the market clears well. Officers with high promotion prospects will gravitate toward the same sort of work; some will settle for less desirable assignments as the next best (or n^{th} best) option. Those whose unconstrained preferences are met will likely be more capable than those forced to settle.

Let's imagine that an officer's assignment preferences are correlated with an officer's past performance; an officer's performance can be quantified on a scale that has a mean and standard deviation. In such a world, let's say that 100 officers have 10 units available and each unit has 10

⁶¹ Clustering has been observed in other settings. Papay and Kraft (2016) found that hiring practices in an urban school system exhibited clustering. Dividing teachers into those hired before the school year and those hired during the school year, teachers hired late tended to be older and possess fewer educational certifications. The late-hired teachers also tended to work at schools that were lower-performing and served a higher percentage of African-American students. The researchers found strong evidence that students performed at a lower level if they had a teacher who was hired late.

open positions. Every officer must go to one of those 100 open positions. The degree of correlation will determine how much sorting occurs, as shown in Figure 5.3.

Figure 5.3 Notional Officer Sorting Due to Correlated Performance and Preference



Without much correlation between previous performance and assignment preference, each unit in the scenario will receive a similar allocation of “previous performance.” However, as the correlation increases, units will start to diverge; at a high level of correlation, units at the tails could see between 0.5 and 1.5 standard deviations of difference from the mean. When units start to have elevated reputations and prestige, officers with the highest historic performance might gravitate to them.

Divergent allocations of officer capability present at least two significant challenges to the Army. First, interchangeable units start to be non-interchangeable when the capability of the officers is at the extreme end. In Figure 5.2, Unit 1 will likely be more capable than Unit 10 just based on the quality of human capital. A mission designed with Unit 1 in mind might be more than most units can accomplish, if the correlation is high enough.

Second, the forced-distribution nature of officer performance evaluations will frustrate the Army’s ability to recognize capability. The 10th most capable officer in Unit 1 might be well above average in the entire population, but might not be recognized as such. Conversely, the most capable officer in Unit 10 could still be significantly below average in the population. A forced-distribution rating system limits the ability of raters and senior raters to provide high-quality performance evaluations to everyone in the organization.

The career field system and the assignment system thus face the same challenges in aligning the right individual to the right work. One of those challenges is cultural: officers have preferences that are correlated (whether to a small degree or a large degree) with their past performance, leaving some career fields or assignments either undermanned (in manpower) or underqualified (in capability). The other challenge is one of incentives: no freely floating mechanism encourages balance in capability across competing institutions. Faced with those challenges in the past, the Army historically resorted to centralized control and involuntary decisions. Moving toward more preference-driven systems might, as Army Chief of Staff General James McConville stated, place “the right person in the right job at the right time,” but it does not eliminate those challenges (Kimmons, 2020).

The principal ingredients for overcoming the cultural challenges are time and flexibility. Innovations, such as personnel systems like VTIP and ATAP, require time to take hold and bear fruit. Eventually, those officers who grew up within those systems will assume leadership positions throughout the Army. That process, as Rosen noted, “is only as fast as the rate at which young officers rise to the top” (1991, p. 105).

Market-like flexibility provides more room for officers to chart interesting and potentially valuable career paths. Providing multiple opportunities to individuals to experiment and change course is associated with high achievement (Arnold, 1995; Epstein, 2019). Flexibility is also likely to be as important to the highest-achieving officers as it is to others (Kane, 2017). It remains to be seen if these gains in achievement more than offset any dysfunction associated with career field or assignment performance-sorting effects.

One option for flexibility could be filling vacant functional area billets with volunteer officers from other career fields and thus combining elements of VTIP and ATAP. Under ATAP, officers and units now seek to find suitable matches based on discovering important details about each other. An added step could allow volunteer officers from branches (or even other functional areas) to request consideration for a functional area assignment, given the training and experience they already have. If the functional area approved the request, the officer could then seek a match from among the functional area assignments. But such temporary movements across career field boundaries must be balanced against the original branch’s strength considerations.

Such flexibility might appeal to officers who are dissatisfied with their current career field, as well as to those who are merely looking to try something different. Even those who are remarkably well-suited for their current branch, with exceptionally high performance to match, might benefit from a change of scenery and new experiences (Watson, Babcock-Lumish, and Urben, 2016; Gerras and Wong, 2013). If an officer shows promise in the functional area job, it would serve as an important indicator for the future. Having demonstrated the quality of the match, the functional area can be more confident that the officer will perform well in the future, especially after additional training. Performance in the job is the best screening device; it’s simply impractical in most circumstances.

The fiscal year 2019 NDAA also provides flexibility in the promotion system, should the Army choose to use it. 10 U.S.C. 649, often known as the alternate promotion authority (Robbert et al., 2019, pp. 78-79), creates a separate promotion system in which an officer is considered for promotion up to five times before being considered for involuntary separation or selective continuation. The alternate promotion authority provides greater flexibility in the timing of promotions, as the traditional system constrains officers to rigid timelines. While the authority requires the application to an entire competitive category, service secretaries have broad latitude to establish such categories as they see fit. “In the most common use, a competitive category divides officers by career field, but this need not be its only use” (Robbert et al., forthcoming). For functional areas, the authority could expand the window at which officers ideally might join the career field. The Army could also use the authority to create pathways for promotion around important, but less plentiful, skill sets.⁶²

10 U.S.C. 619 provides another source of flexibility, granting the military services the ability to allow officers to opt out of an upcoming promotion selection board. Several circumstances could serve as the basis for a request to opt out: “to complete a broadening assignment, advanced education, another assignment of significant value to the Department, or a career progression requirement delayed by the assignment or education.” Especially for functional areas in which graduate education is a common occurrence, the ability to opt out of a promotion board might expand the window during which an officer could join the functional area. At the same time, the Army should consider negative reactions to opt out, including the perception that graduate education cannot fit into a normal career timeline without delaying promotion (Robbert et al., forthcoming).

At the unit level, flexibility in determining the work role for assigned officers might increase the attractiveness of the organization. Given that combinations of KSAs are unique to each individual, unit commanders could blur traditional work roles and create new opportunities based on the capability of the individual and the need of the organization. Such a match might not be intuitive at first glance, but rather emerges from conversations and contemplation. In short, unit commanders could minimize adhering to traditional manning documents. This is less practical within the operational force, where tradition and standardization are important. Within the institutional force, greater flexibility is possible.

⁶² Some have previously recommended for creating career paths in institutional assignments, as most senior leadership positions in the military revolve around running the institution rather than leading major operations (Barno et al., 2013).

6. Recommendations and Conclusion

As a program to provide manpower to functional areas, VTIP works well in certain circumstances. Functional areas must generate interest from qualified candidates, with *qualified* generally meaning an adequate level of performance to date and possession of specific qualifications. The interested population might be a narrow cohort of officers or could be quite broad; regardless, they must meet the quality threshold to transfer.

To increase the level of interest in the functional area, and to thus attract additional qualified applicants, functional areas face several constraints. Many factors that influence job satisfaction are beyond the immediate control of the functional area: where and with whom officers will work; promotion policies; and the growth rate of the functional area. While functional areas could prioritize graduate education, any such prioritization generally must support Army requirements and would be subject to the availability of funding for graduate education is beyond the control of the functional area.

There are, however, options within the control of a functional area: the hiring standards and screening devices used to sort and screen VTIP applicants. At first glance, tightened hiring standards or the introduction of a screening device should lower the volume of applicants (by discouraging now-unqualified individuals) and, at least in theory, improve the quality of those accepted for transfer. Arguably, increasing standards might make the functional area more attractive, serving as an advertisement to prospects about the nature of the work and the quality of future co-workers. For most career fields, functional areas made few changes to hiring standards or screening devices. Furthermore, most screening devices considered only educational qualifications (standardized test scores; field of study) and military performance, rather than tests closely linked to other KSAs important to the job.

My analysis also illuminates the divergent preferences of Army officers. Proportionally, more officers who are at risk of failing selection for promotion are interested in transferring to a functional area than their peers who are more likely to be promoted. Intuitively, this makes sense and is desirable: an individual who is struggling in a current career field *should be* interested in changing paths. Conversely, one who is already doing well should be less interested in a new career field. VTIP, with its focus on providing quality (e.g. a combination of suitability and high promotion potential) manpower to functional areas, frustrates the aspirations of officers if they lack the quality markers associated with promotion and are prevented from acquiring those markers in a new field.

Correlation between promotion prospects and career preferences can result in mismatches. For functional areas, too few officers with solid promotion likelihood apply through VTIP. The challenge could extend to the wider area of assignments. The same correlation might discourage

promotion-likely officers from pursuing non-traditional assignments; those same assignments might be highly desired by promotion-unlikely officers.

Within this environment, I have several recommendations for consideration:

- Functional areas should consider identifying KSAs and incorporating those KSAs into selection devices.
- Human Resources Command should consider a more flexible approach to the VTIP quality threshold, allowing entry to some whose previous performance has lagged.
- The Army should consider implementing new personnel authorities (such as alternative promotion authority) for some functional areas.

Recommendation: Develop and Use KSAs

Few functional areas use extensive information to aid their selection decisions. FA 59 (Strategist) solicits the most information, using multiple selection devices to (try to) identify those who will succeed in training and in the job. FA 48 (FAO) likewise demands additional information relevant to the functional area. Some place an emphasis on previous educational coursework, either desiring an undergraduate degree from a broad selection of fields or coursework in certain areas. Unsurprisingly, those career fields plagued by smaller applicant pools require fewer application materials.

The sparsity of entry requirements points toward a more significant concern: few functional areas might comprehensively understand which personal factors – knowledge, skills, and abilities – really influence the effectiveness of its members. Instead, a simple heuristic is employed: those who will perform well in the future are those who performed well in the past, especially if they have an undergraduate degree in a broadly relevant field. The heuristic is useful, as far as it goes. There are likely traits (e.g. general intelligence) that influence how well one does in any job, so knowing the performance in one role might give useful insights into future performance in other roles. Those who pursued an undergraduate degree in a technical discipline might be more inclined to serve in a technical career field, if not more capable.

The seeming lack of understanding about key KSAs, made manifest by simple and often unchanging entry requirements, risks leaving some functional areas ill-equipped for the present and most functional areas unprepared for an information-rich future. Functional areas should consider investing resources into uncovering KSAs that are important for the job, understanding how to identify and measure those KSAs, and include instruments for measuring the KSAs among their screening devices.

KSA-based screening that exceeds a review of military performance and educational qualifications might be most influential for those functional areas that struggle to attract successful applicants. All functional areas, however, face a future in which officers have potentially better matches with their current branch, potentially placing more downward pressure on applicant numbers. In such an environment, those functional areas with a nuanced

understanding of what it takes to be successful, and the means to identify it, will be well-positioned.

Recommendation: With Improved KSA Awareness, Add More Flexibility to the VTIP Quality Threshold

For most functional areas in most VTIP panels, the quality threshold is the binding constraint. Most functional areas have space for additional people, but lowering the standards for entry might be (and likely is) undesirable when viewing the current entry requirements and selection criteria.

The expanded development and use of KSAs as described in the first recommendation yields opportunities for functional areas. With an improved knowledge of KSAs important for success, most functional areas will be able to chart alternate pathways that avoid traditional chokepoints for applicants (e.g. undergraduate field of study; military command experience). The supply of available officers might expand, resulting in a higher level of overall quality for the functional area when a larger pool of the best are selected for transfer.

Open-mindedness about what it takes to succeed in the functional area could even extend to considering those whose performance record is below average. Some might have KSAs that suggest they would be highly successful in a different career field. Better assessments, tied to the KSAs needed for the job, will help the Army find those officers. Left in a current career field, their future might be limited. Moved to a new career field because of effective screening, all stakeholders will benefit: the officer, the functional area, and the previous career field.

Incorporating the more refined KSAs described above, functional area proponents and Human Resources Command should consider adding more flexibility to the quality threshold. The goal from a more flexible threshold is the identification of officers who might significantly improve performance after a transfer. If training costs are low, the risk of non-selection might still justify transfer.

Recommendation: Consider the Alternate Promotion Authority for Some Functional Areas

While an officer might have several windows over many years to apply to a functional area, in practice the ideal period to transfer might be quite narrow. The standardized promotion timing of DOPMA ensures predictability, but at the expense of flexibility. For an officer considering switching career fields, promotion consideration and timing becomes paramount: either acquire enough quality markers to ensure promotion before transfer or allow enough time in a new career field to do the same.

Fortunately for functional areas, Congress created the alternate promotion authority, which allows for up to five appearances before a promotion selection board for officers within a designated competitive category. The Army could designate one or more functional areas as a competitive category and designate it for the alternate promotion authority. By doing so,

functional area officers gain far greater flexibility in promotion timing, and thus far larger windows during which to join a functional area.

For functional areas that historically struggle to attract traditionally qualified applicants, the alternate promotion authority might be a valuable policy tool. Synchronized with better KSA screening devices and a flexible quality threshold, officers who have previously struggled would gain additional years during which to prove their promotion merit.

One or more functional areas grouped in a competitive category for the alternate promotion authority would also segregate those career fields from promotion competition with basic branches. As currently structured, all functional areas share a competitive category with one or more basic branches (see Table 2.4). Within a smaller competitive category, functional area officers would not be compared to officers pursuing a command-centric career path. Determining the right size for the competitive category deserves extensive consideration before implementation; too small could yield a narrowly defined competitive category with the attendant risk of extensive promotion fratricide.

Areas for Future Research

Several productive avenues of research could emerge from this dissertation. Potentially the most obvious extension of this research would use individual-level data to better understand the outcomes of VTIP policy; one such research technique is the criterion-related validation study (American Psychological Association, 2018). Linking VTIP application and acceptance data with personnel data could further untangle the relationship between functional area changes and individual or aggregated performance over time.

Individual-level data could assist in examining the efficacy of the VTIP quality threshold. The threshold is set at the level broadly consistent with promotion to the next rank, based on the judgment of experienced officers at Army Human Resources Command. Ultimately, it is a prediction about the future. We do not know the accuracy of the prediction. Among those who applied to VTIP and were not approved, understanding their career outcomes would be beneficial for policy makers.

During my data collection, one interviewee observed that functional areas have different approaches to recruiting potential members (Interview 13, 2020). Some will rely on current members to identify potential future members. Others will recruit primarily through assignment officers at HRC. Still others will use the proponent office. Further research could expand in this area and help gauge which method or combination of methods best assists functional areas in meeting their manpower needs.

Lastly, each functional area is itself a complex ecosystem, with power brokers, formal and informal sources of influence, established and emerging relationships, and unique histories. Any could be a fruitful field for further research, especially when comparing the nature of these relationships to the ability of the functional area to maintain its autonomy, provide a fulfilling career to its members, and meet the Army's need for technical expertise.

Appendix A: Understanding Circumstances Surrounding Career Field Mergers and Competitive Category Changes

In Chapter 4, I discuss how several functional areas merged with branches, merged with other functional areas, or switched competitive categories since the introduction of VTIP. In this chapter, I explore this occurrence in more detail. It is worth restating those changes:

- FA 24 (Telecommunications Systems Engineer) and FA 53 (Information Systems Management) merged and became the new FA 26 (Information Network Engineering)
- FA 29 (Electronic Warfare) switched competitive category and later merged with Cyber branch
- FA 34 (Strategic Intelligence) will merge with Military Intelligence branch in October 2021 and cease to be a functional area (Department of the Army, 2019)
- FA 30 (Information Operations) switched competitive categories twice
- FA 46 (Public Affairs) switched competitive category.

My task is to understand underlying factors that might contribute to such changes. Because these changes impact how individuals compete for promotion and how the Army accounts for positions in organizations, I will again turn to a key structural difference between functional areas: the difference between the functional area promotion rate to O-4 and O-5 compared to the Army overall or other branches and functional areas.⁶³

The difference in promotion rates can occur in two scenarios, depending on the perspective one takes. The simple scenario is that a functional area is consistently promoted at a rate less than the Army overall. The more complex scenario is that a functional area is consistently promoted at a rate greater than a competing branch. Either scenario might lead to a change in the promotion structure, but for opposite reasons.

Table A shows the truth table, in which the outcome of interest is a merger or competitive category change. The truth table shows the presence (reflected as a '1') or absence (reflected as a '0') of a condition (Ragin, 2014). In the column labeled 'Outcome,' presence indicates that a functional area merged with another branch or functional area, or switched to a different competitive category, while absence denotes no change.

⁶³ For this research, I use the primary zone promotion rate for every branch and functional area, as well as the Army overall. One limitation of the data is the variation in sample sizes, which are unknown (i.e. I do not know how many were selected versus how many were eligible). Especially for a small functional area, slight differences in the number of officers selected for promotion could wildly change promotion rates. To minimize this variation, I use the median difference for 2012-2019. For every year from 2012-2019, I calculated the difference between the career field's promotion rate and the Army average (e.g. in FY 2012, FA 57 O-3s were selected for promotion at the 95 percent rate, compared to the Army overall at 89 percent, yielding a difference of six percentage points).

Table A Truth Table

| Functional area | Promotion rate below Army average by more than 6 percentage points | Reliant on one branch for substantial manning | Shared proponent with feeder branch | Promotion rate higher than feeder branch | Outcome |
|--|---|--|--|---|----------------|
| FA 24 Telecommunications Systems Engineer | 1 | 1 | 1 | 1 | 1 |
| FA 29 Electronic Warfare | 1 | 0 | 0 | 0 | 1 |
| FA 30 Information Operations | 1 | 0 | 0 | 0 | 1 |
| FA 46 Public Affairs | 1 | 0 | 0 | 0 | 1 |
| FA 53 Information Systems Management | 1 | 1 | 1 | 0 | 1 |
| FA 34 Strategic Intelligence | 0 | 1 | 1 | 1 | 1 |
| FA 57 Simulations Operations | 0 | 0 | 0 | 0 | 0 |
| FA 40 Space Operations | 0 | 0 | 0 | 0 | 0 |
| FA 48 FAO | 0 | 0 | 0 | 0 | 0 |
| FA 49 ORSA | 0 | 0 | 0 | 0 | 0 |
| FA 50 Force Management | 0 | 0 | 0 | 0 | 0 |
| FA 51 Acquisition Corps | 0 | 0 | 0 | 0 | 0 |
| FA 52 Nuclear and Counterproliferation | 0 | 1 | 0 | 1 | 0 |
| FA 59 Strategist | 0 | 0 | 0 | 0 | 0 |

SOURCE: Author's analysis of FY 2012-2019 Promotion Rates, information provided by US Army Talent Management Task Force, 2020; U.S. Army Directorate of Force Management, Force Management System Website (FMSWeb).

A straightforward explanation quickly emerges that covers most circumstances: a promotion rate below the Army average by more than six percentage points is associated with a career field merger or a competitive category change. Especially for competitive category changes, the movement might represent an alignment of a career field to a competitive category in which officers appear less out of the mainstream. Close to that threshold is FA 57 (Simulations Operations), which was six percentage points below the Army average for promotion to both major and lieutenant colonel.

However, FA 34 (Strategic Intelligence) presents more complex circumstances. Rather than experience a promotion rate consistently below the Army average, FA 34 saw a promotion rate consistently above the Army average and above the Military Intelligence (MI) branch, with whom it shares a proponent office and from whom it receives many personnel. FA 34 is unusually reliant on MI for personnel; between 2014-2019, 36 percent of those approved to transfer to FA 34 came from MI. Only the information technology functional areas (FA 24 and FA 53) had a more dependent relationship (in those cases, with Signal branch). Chemical branch also provides a significant percentage of the manpower to FA 52 (Nuclear and Counterproliferation) and provides relatively few officers to other functional areas. FA 34 and MI likewise shared a common proponent office, just as Signal does with FA 24 and FA 53. No other branch shared a proponent office with a functional area.

While over a third of FA 34's officers came from MI, the regular flow of MI officers to FA 34 caused consternation since FA 34's creation. At the outset of OPMS XXI, combat arms officers were expected to provide up to half of the officers designated for a functional area (OPMS Task Force, 1997). In the early years under OPMS XXI, about 80 percent of FA 34 officers came from MI (Munn, 2001). While this intelligence experience benefitted the FA 34 reputation, it did little to assist MI branch as it struggled to fill its own field grade authorizations. By 2002, the MI proponent directed that career field designation boards should not designate MI officers into FA 34. While this stemmed losses from MI, it closed off opportunities to leave a branch that was already suffering from discontent (Torrison, 2007). Tensions between the FA 34 community and the MI proponent would occasionally boil to the surface, as they did in 2006 and 2012 (Torrison, 2007; Camacho, 2012). Such public spats seem less prevalent between Signal branch and FAs 24 and 53 (Office of the Chief of Signal Staff, 2012; Cross 2002).

Differences in the promotion rates between MI and FA 34 officers probably underscored the need for change, at least from the MI proponent's perspective. In short, FA 34s are promoted to O-4 and O-5 at a greater rate than MI officers. From 2012 to 2019, the Army promoted FA 34s to O-4 about ten percentage points more than the Army average, while MI officers were promoted about six percentage points less. To O-5, the gap narrows only slightly: FA 34s were promoted nine percentage points more while MI officers were promoted five percentage points less. The gap between the promotion rates is even larger in more recent years. Such promotion differentials are less stark between Signal and its two functional areas.

The incorporation of FA 34 into MI branch might be the significant structural change that can be attributed to VTIP. The MI proponent created a barrier to prevent MI officers from joining FA 34 during the years of the Career Field Designation Board, but no such barrier existed during VTIP. VTIP provided a mechanism through which MI officers could depart the branch for a related functional area (or an unrelated functional area if they so decided). The promotion success of FA 34 officers showed that officers who were more competitive for promotion on average left MI, although I say this with low confidence.⁶⁴

Using Table A as a guide, two scenarios that might lead to a functional area experiencing a merger or competitive category change:

- Scenario 1: the functional area experienced a promotion rate over time that was more than six percentage points below the Army average, or
- Scenario 2: the functional area was reliant on one branch for a substantial portion of its manning, shared a proponent office with that branch, and saw promotion rates that exceeded that of the branch.

Armed with this knowledge, what can we say of the future? First, establishing a branch and a functional area under the same proponent office risks tension over time. Signal Corps and the new FA 26 (created by the merger of FA 24 and FA 53) have to this point avoided such tension, but differential promotion rates might expose faults in the relationship.

In addition, FA 57 approaches the conditions that are associated with a change, whether through a merger or competitive category switch. FA 57 officers were promoted to O-4 and O-5 at slightly lower rates than the Army overall, with a six-percentage point difference in medians at both grades. Perhaps a movement to the Information Dominance competitive category, which would follow the lead of both FA 29 and FA 30, could be in its future.

Other tensions might emerge over time due to talent flight from a branch to a functional area. FA 59 (Strategist) officers were promoted about 11 percentage points above the Army median rate to O-4 and 18 percentage points above to O-5. Around 52 percent of FA 59 officers come from the combat arms branches of Infantry, Armor, and Field Artillery. Other functional areas that draw officers from those three branches in a similar proportion include FA 57 (55 percent), FA 29 (47 percent), and FA 30 (45 percent), while no other functional area draws more than a third. But unlike the other functional areas that rely on a significant percentage of combat arms officers, FA 59 officers are promoted well above the Army average.

⁶⁴ Based on available data, I cannot disentangle the promotion rate of FA 34 officers who were originally MI versus FA 34 officers who were originally with a different branch.

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