



RAND RESEARCH ON

CIVILIAN WORKFORCE ISSUES



RAND PROJECT AIR FORCE

This document highlights RAND Project AIR FORCE (PAF) research conducted on the civilian workforce in the past ten years. It provides exemplars of research on this topic conducted for the U.S. Air Force and its sister services, the Office of the Secretary of Defense, and other federal government agencies.

RESEARCH TOPICS

Previous RAND research on civilian workforce issues for the Department of the Air Force (DAF), as well as for other military departments, has addressed various topics, including

- workforce requirements
- recruiting and hiring
- training and development
- advancement and retention
- compensation and benefits
- alternative personnel systems and demonstration projects
- workforce management
- workforce resilience and environment.

RESEARCH METHODS

RAND staff include more than 600 doctoral-level researchers with diverse areas of expertise. PAF draws from this broad research staff to address important research questions raised by the DAF. PAF also maintains a core set of researchers who have particular expertise and knowledge of the DAF to help ensure that PAF’s research approach fits the DAF context. Previous research on civilian

workforce issues has used a variety of approaches, including

- staffing and manpower models
- market and labor analysis
- statistical modeling
- survey design, administration, and analysis
- interviews and focus groups
- literature reviews.

RESEARCH METHODS

PAF’s policy-focused approach to research has enabled our findings to directly influence policy and practices related to various civilian workforce topics, including staffing requirements, recruiting and hiring efforts, barriers to advancement and retention, and improvements to workforce management.

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WORKFORCE REQUIREMENTS

DEPARTMENT OF THE AIR FORCE

U.S. Space Force Personnel Role Distinctions: Differentiating Between Officer, Enlisted, and Civilian

2024, RR-A2324-1, www.rand.org/t/RR-A2324-1

Alignment of U.S. Space Force Military Human Capital Management Functions: A Qualitative Review

2024, RR-A2324-1, www.rand.org/t/RR-A2324-2

Personnel Needs for Department of the Air Force Digital Talent: A Case Study of Software Factories

2022, RR-A550-1, www.rand.org/t/RR-A550-1

Air Force–Wide Needs for Science, Technology, Engineering, and Mathematics (STEM) Academic Degrees

2014, RR-659-AF, www.rand.org/t/RR659

The Mix of Military and Civilian Faculty at the United States Air Force Academy: Finding a Sustainable Balance for Enduring Success

2013, MG-1237-AF, www.rand.org/t/MG1237

OTHER DEPARTMENT OF DEFENSE AND FEDERAL GOVERNMENT SPONSORS

Is the National Nuclear Enterprise Workforce Postured to Modernize the Triad? Insights and Options from a Quick-Turn Assessment

2022, RR-A1227-1, www.rand.org/t/RR-A1227-1

The Composition and Employment of Software Personnel in the U.S. Department of Defense: An Initial Analysis

2020, RR-A520-1, www.rand.org/t/RR-A520-1

Determining Staffing Needs for Administrative, Professional, and Technical Workers in the U.S. Secret Service: Methods and Lessons Learned

2020, RR-3206-DHS, www.rand.org/t/RR3206

Determining Staffing Needs for Administrative, Professional, and Technical Workers in the U.S. Secret Service: A User Guide for Workforce Staffing Models

2020, TL-353-DHS, www.rand.org/t/TL353



Software Acquisition Workforce Initiative for the Department of Defense: Initial Competency Development and Preparation for Validation

2020, RR-3145-OSD, www.rand.org/t/RR3145

Army Expeditionary Civilian Demand: Forecasting Future Requirements for Civilian Deployments

2019, RR-2854-A, www.rand.org/t/RR2854

Analyses of the Department of Defense Acquisition Workforce: Update to Methods and Results Through FY 2017

2018, RR-2492-OSD, www.rand.org/t/RR2492

Gap Analysis and Alternatives Analysis of the Coast Guard Cost Estimating Workforce

2018, RR-2047-DHS, www.rand.org/t/RR2047

U.S. Department of Defense Experiences with Substituting Government Employees for Military Personnel: Challenges and Opportunities

2016, RR-1282-OSD, www.rand.org/t/RR1282

Workforce Downsizing and Restructuring in the Department of Defense: The Voluntary Separation Incentive Payment Program Versus Involuntary Separation

2016, RR-1540-OSD, www.rand.org/t/RR1540

The Future of the Army's Civilian Workforce: Comparing Projected Inventory with Anticipated Requirements and Estimating Cost Under Different Personnel Policies

2014, RR-576-A, www.rand.org/t/RR576

Options for Department of Defense Total Workforce Supply and Demand Analysis: Potential Approaches and Available Data Sources

2014, RR-543-OSD, www.rand.org/t/RR543

Ensuring Language Capability in the Intelligence Community: What Factors Affect the Best Mix of Military, Civilians, and Contractors?

2013, TR-1284-ODNI, www.rand.org/t/TR1284



RECRUITING AND HIRING

DEPARTMENT OF THE AIR FORCE

Integrating Recruiting and Marketing for the Total Air Force

2024, RR-4391-AF, www.rand.org/t/RR4391

Attracting and Employing Top-Tier Civilian Technical Talent in the Department of the Air Force: A Comparison of Six Occupations with Other Federal Agencies and the Private Sector

2023, RR-A987-1, www.rand.org/t/RRA987-1

Building the Best Offensive and Defensive Cyber Workforce: Volume II, Attracting and Retaining Enlisted and Civilian Personnel

2021, RR-A1056-2, www.rand.org/t/RRA1056-2

OTHER DEPARTMENT OF DEFENSE AND FEDERAL GOVERNMENT SPONSORS

An Assessment of Two-Year Probationary Period Usage Within the Defense Civilian Workforce: A Report Prepared for the U.S. Department of Defense in Compliance with Section 1102 of the Fiscal Year 2020 National Defense Authorization Act

2023, RR-A667-1, www.rand.org/t/RRA667-1

Improving the Department of the Army's Marketing for Recruitment, Hiring, and Retention of Civilians in Critical Occupations

2022, RR-A1337-1, www.rand.org/t/RRA1337-1

Representation of Persons with Targeted Disabilities: An Analysis of Barriers to Employment in the Department of Defense Civilian Workforce

2018, RR-2297-OSD, www.rand.org/t/RR2297

Unequal Opportunity: Barriers to Employment in the Department of Defense Civilian Workforce

2018, RB-10017-OSD, www.rand.org/t/RB10017

Women's Representation in the U.S. Department of Defense Workforce: Addressing the Influence of Veterans' Employment

2018, RR-2458-OSD, www.rand.org/t/RR2458

Hispanic Representation in the Department of Defense Civilian Workforce: Trend and Barrier Analysis

2017, RR-1699-OSD, www.rand.org/t/RR1699

U.S. Department of Defense Experiences with Substituting Government Employees for Military Personnel: Challenges and Opportunities

2016, RR-1282-OSD, www.rand.org/t/RR1282

TRAINING AND DEVELOPMENT



DEPARTMENT OF THE AIR FORCE

Improving the Technical Requirements Development Process for Weapon Systems: A Systems-Based Approach for Managers

2022, RR-A997-1, www.rand.org/t/RR997-1

Building the Best Offensive and Defensive Cyber Workforce: Volume I, Improving U.S. Air Force Training and Development

2021, RR-A1056-1, www.rand.org/t/RR1056-1

Advanced Academic Education in the U.S. Space Force: Strategies for Developing a Technical Workforce

RR-A1750-1, forthcoming

General Officers, Career Field Sustainability, Training Pipelines, and the Civilian Workforce of the U.S. Space Force: Considered Options to Enhance Structure and Configuration

RR-A547-1, forthcoming

OTHER DEPARTMENT OF DEFENSE AND FEDERAL GOVERNMENT SPONSORS

Career Development for the Department of Defense Security Cooperation Workforce

2018, RR-1846-OSD, www.rand.org/t/RR1846

ADVANCEMENT AND RETENTION



DEPARTMENT OF THE AIR FORCE

Advancement and Retention Barriers in the U.S. Air Force Civilian White Collar Workforce: Implications for Demographic Diversity

2020, RR-2643-AF, www.rand.org/t/RR2643

OTHER DEPARTMENT OF DEFENSE AND FEDERAL GOVERNMENT SPONSORS

Civilian Cyber Workers in the U.S. Department of Defense: Demographics, Retention, and Responsiveness to Training Opportunities

2022, RR-A730-3, www.rand.org/t/RRA730-3

Career Paths in the Army Civilian Workforce: Identifying Common Patterns Based on Statistical Clustering

2018, RR-2280-A, www.rand.org/t/RR2280

Retention and Promotion of High-Quality Civil Service Workers in the Department of Defense Acquisition Workforce

2015, RR-748-OSD, www.rand.org/t/RR748

COMPENSATION AND BENEFITS



DEPARTMENT OF THE AIR FORCE

Department of the Air Force Civilian Compensation and Benefits: How Five Mission Critical and Hard-to-Fill Occupations Compare to the Private Sector and Key Federal Agencies

2021, RR-A334-1, www.rand.org/t/RR334-1

OTHER DEPARTMENT OF DEFENSE AND FEDERAL GOVERNMENT SPONSORS

Demographic Diversity of the Science, Technology, Engineering, and Mathematics (STEM) Workforce in the U.S. Department of Defense: Analysis of Compensation and Employment Outcomes

2023, RR-A1480-1, www.rand.org/t/RR1480-1

Compensation and Benefits for Science, Technology, Engineering, and Mathematics (STEM) Workers: A Comparison of the Federal Government and the Private Sector

2021, RR-4267-OSD, www.rand.org/t/RR4267

DoD Cyber Excepted Service Labor Market Analysis and Options for Use of Compensation Flexibilities

2021, RR-A730-1, www.rand.org/t/RR730-1

Monetary and Nonmonetary Compensation for High-Value U.S. Department of Defense Civilian Skill Sets

2020, RR-A385-1, www.rand.org/t/RR385-1

An Enhanced Capability to Model How Compensation Policy Affects U.S. Department of Defense Civil Service Retention and Cost

2016, RR-1503-OSD, www.rand.org/t/RR1503

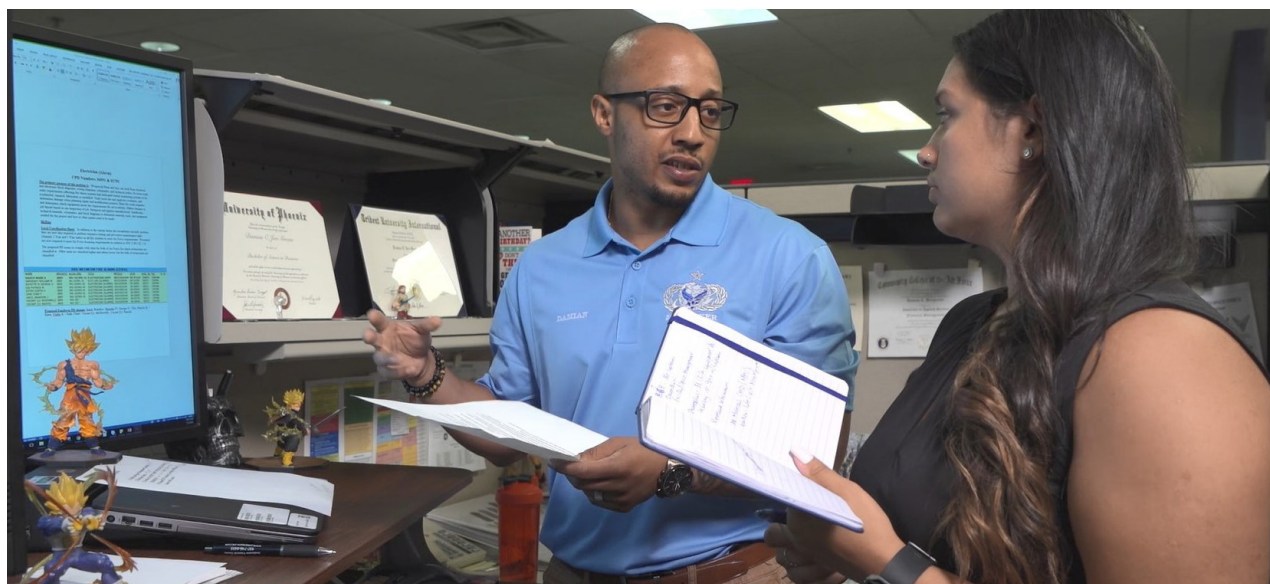
The Federal Civil Service Workforce: Assessing the Effects on Retention of Pay Freezes, Unpaid Furloughs, and Other Federal-Employee Compensation Changes in the Department of Defense

2014, RR-514-OSD, www.rand.org/t/RR514

How Do Federal Civilian Pay Freezes and Retirement Plan Changes Affect Employee Retention in the Department of Defense?

2014, RR-678-OSD, www.rand.org/t/RR678

ALTERNATIVE PERSONNEL SYSTEMS AND DEMONSTRATION PROJECTS



DEPARTMENT OF THE AIR FORCE

Assessing the Implications of Policy Options for the Military Personnel Budget: An Analytic Framework for Evaluating Costs and Trade-Offs

2023, RR-A1218-1, www.rand.org/t/RR1218-1

OTHER DEPARTMENT OF DEFENSE AND FEDERAL GOVERNMENT SPONSORS

Neurodiversity and National Security: How to Tackle National Security Challenges with a Wider Range of Cognitive Talents

2023, RR-A1875-1, www.rand.org/t/RR1875-1

Employee Conversions to the Cyber Excepted Service: Assessing Factors and Characteristics Related to Personnel Conversion Decisions

2021, RR-A730-2, www.rand.org/t/RR730-2

Federal Civilian Workforce Hiring, Recruitment, and Related Compensation Practices for the Twenty-First Century: Review of Federal HR Demonstration Projects and Alternative Personnel Systems to Identify Best Practices and Lessons Learned

2020, RR-3168-OSD, www.rand.org/t/RR3168

2016 Assessment of the Civilian Acquisition Workforce Personnel Demonstration Project

2017, RR-1783-OSD, www.rand.org/t/RR1783

Analyses of the Department of Defense Acquisition Workforce: Update to Methods and Results Through FY 2011

2013, RR-110-OSD, www.rand.org/t/RR110

An Assessment of the Civilian Acquisition Workforce Personnel Demonstration Project

2012, TR-1286-OSD, www.rand.org/t/TR1286

WORKFORCE MANAGEMENT

DEPARTMENT OF THE AIR FORCE

Optimizing the Contributions of Air Force Civilian STEM Workforce

2020, RR-4234-AF, www.rand.org/t/RR4234

Air Force Management of the Defense Acquisition Workforce Development Fund: Opportunities for Improvement

2016, RR-1486-AF, www.rand.org/t/RR1486

OTHER DEPARTMENT OF DEFENSE AND FEDERAL GOVERNMENT SPONSORS

Implementation of the New Defense Acquisition Workforce Improvement Act Framework: End of Fiscal Year 2022 Update

2024, RR-A758-3, www.rand.org/t/RRA758-3

Army Full-Time Support Processes: Considerations for Enhancing Common Understanding, Transparency, and Unity of Purpose

2023, PE-A1038-1, www.rand.org/t/PEA1038-1

Assessing Security Risk in a New Normal: Impacts of the COVID-19 Pandemic on Personal and Work Behaviors

2023, RR-A1692-1, www.rand.org/t/RRA1692-1

Comparison of Public and Private Sector Cybersecurity and IT Workforces

2023, RR-A660-7, www.rand.org/t/RRA660-7

Creating Readiness Metrics for the Army Civilian Workforce: A Way Ahead for Integrating Readiness into Civilian Workforce Planning

2023, RR-A2225-1, www.rand.org/t/RRA2225-1

Department of Defense Acquisition Workforce Analyses: Update Through Fiscal Year 2021

2022, RR-A758-2, www.rand.org/t/RRA758-2

How the *Dobbs* Decision Could Affect U.S. National Security

2022, PE-A2227-1, www.rand.org/t/PEA2227-1

Support to the DoD Cyber Workforce Zero-Based Review: Developing a Repeatable Process for Conducting ZBRs Within DoD

2022, RR-A660-6, www.rand.org/t/RRA660-6

Talent Management for U.S. Department of Defense Knowledge Workers: What Does RAND Corporation Research Tell Us?

2021, RR-A950-1, www.rand.org/t/RRA950-1

Civilian Post-Deployment Reintegration: A Review and Analysis of Practices Across U.S. Federal Agencies

2020, RR-3220-RC, www.rand.org/t/RR3220

Support for DoD Supervisors in Addressing Poor Employee Performance: A Holistic Approach

2018, RR-2665-OSD, www.rand.org/t/RR2665

Expeditionary Civilians: Creating a Viable Practice of Civilian Deployment Within the U.S. Interagency Community and Among Foreign Defense Organizations

2016, RR-1249-OSD, www.rand.org/t/RR1249

Expeditionary Civilians: Creating a Viable Practice of Department of Defense Civilian Deployment

2016, RR-975-OSD, www.rand.org/t/RR975

Improving the Timeliness of Equal Employment Opportunity Complaint Processing in Department of Defense

2015, RR-680-OSD, www.rand.org/t/RR680



**DEPARTMENT OF DEFENSE AND
FEDERAL GOVERNMENT SPONSORS**

**Harassment and Discrimination in the
FEMA Workplace: Top-Line Results from
the Workplace Survey Support Study**
2020, RB-A383-1, www.rand.org/t/RBA383-1

**Harassment and Discrimination on the
Basis of Gender and Race/Ethnicity in the
FEMA Workforce**

2020, RR-A383-1, www.rand.org/t/RRA383-1

WORKING WITH US

WHAT WE DELIVER

PAF's studies and analyses are tailored to the needs of the sponsor. Generally, PAF provides

- continuous interaction with PAF subject-matter experts throughout the project
- accessible, timely, and policy-focused reports that address senior leader concerns and recommend courses of action
- descriptive, transparent, and rigorous supporting materials that describe the project's methodology and support the project's conclusions
- as appropriate, additional outreach materials to help socialize the work to other interested stakeholders, such as the DAF, the Department of Defense, Congress, or the public.

SPONSOR IDENTIFICATION

All PAF research projects must be sponsored by a USAF general officer (GO) or member of the senior executive service (SES). Most sponsors assign one or more action officers (AOs) to manage the technical and administrative aspects of their PAF projects.

LINES OF FUNDING

DAF organizations can initiate a PAF research project in two ways:

1. **Centrally Funded** (also referred to as “core projects”). Air Force Studies, Analyses, and Assessments (SAF/SA; formerly HAF/A9) employs a rigorous, iterative GO/SES voting process to select projects for inclusion in its annual research plan. This process accounts for about 70 percent of the projects that PAF will conduct during a fiscal year. Funding

for these projects is part of a line item in the congressional budget and is awarded through the competitive selection process. Project topics are submitted in January and the research plan is approved by a steering group consisting of three- and four-star GOs between June and July. Maintaining a balance of projects across the DAF and the four PAF programs is key to this selection process.

2. **Sponsor Funded** (also referred to as “add-on projects” because they are add-ons to the core research agenda). This process accounts for about 30 percent of the projects that PAF will conduct during a fiscal year. Funding for these projects comes directly from the organization requesting the research and does not require a competitive selection process because the requesting organization is paying for the research (and not competing with others). DAF sponsors may initiate a PAF add-on research project at any time of the year by requesting the work, submitting required documentation, and transmitting organizational funds. Ideas and requests for PAF add-on projects may originate from a variety of circumstances (e.g., continuation of prior PAF work or new challenges). To initiate the process, a sponsor or AO typically contacts the appropriate PAF program director or subject-matter expert. The timeline of add-on projects is flexible.

PAF also supports DAF organizations in many informal ways. To request Workforce, Development and Health (WDH) research reports highlighted here or to discuss pressing DAF challenges, contact the director of PAF's WDH program at www.rand.org/paf/about/pafmanagement.

RAND Project AIR FORCE (PAF), a division of RAND, is the Department of the Air Force's (DAF's) federally funded research and development center for studies and analyses, supporting both the United States Air Force and the United States Space Force. PAF provides the DAF with independent analyses of policy alternatives affecting the development, employment, combat readiness, and support of current and future air, space, and cyber forces. Research is conducted in four programs: Strategy and Doctrine; Force Modernization and Employment; Resource Management; and Workforce, Development, and Health.

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www.rand.org/t/CPA2660-6

