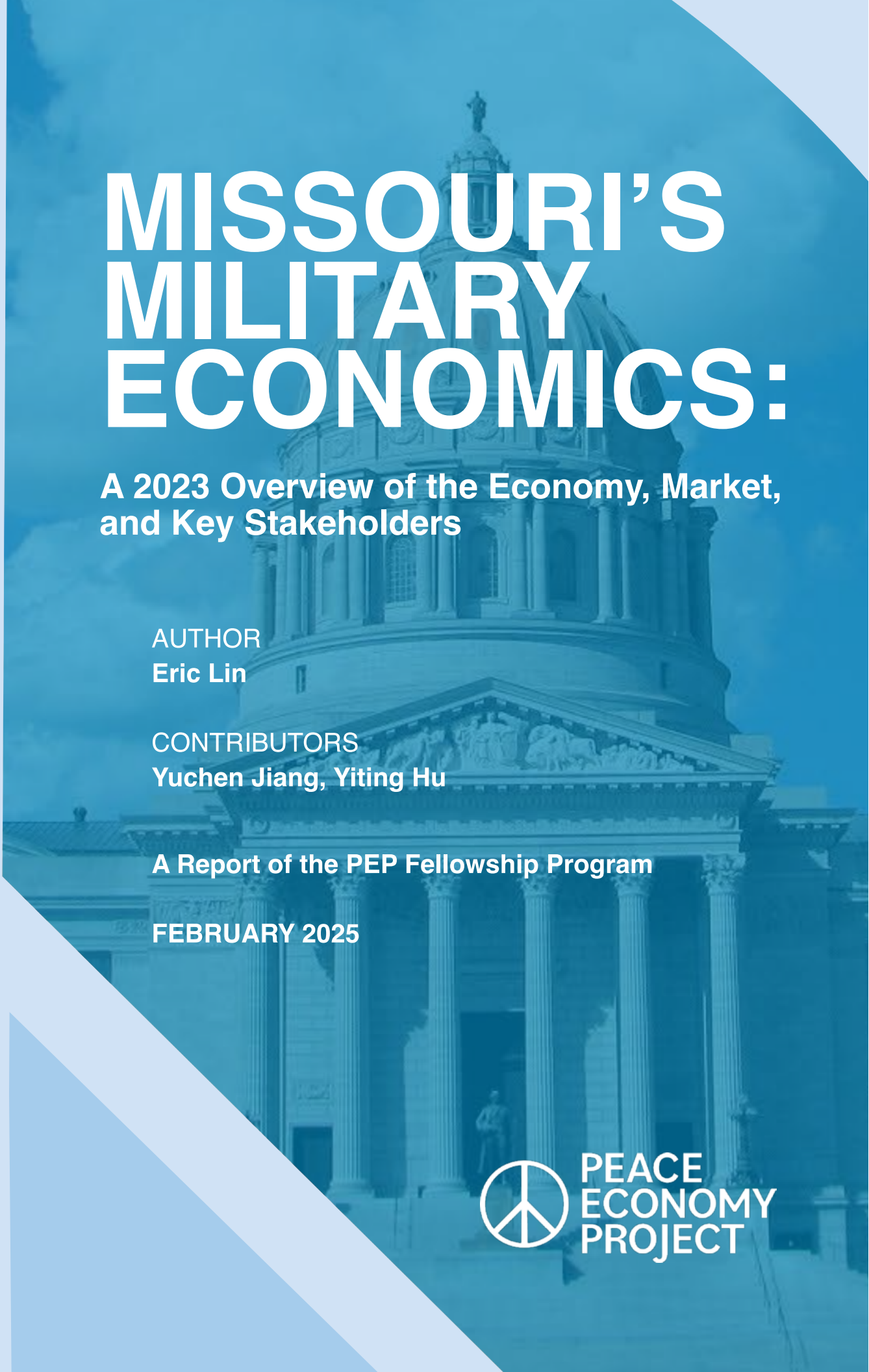

MISSOURI'S MILITARY ECONOMICS:

A 2023 Overview of the Economy, Market, and Key Stakeholders

AUTHOR
Eric Lin

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A Report of the PEP Fellowship Program

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About PEP

Peace Economy Project (PEP) is a nonprofit organization dedicated to promoting peace and social justice by advocating for the redirection of military spending toward community-centered and sustainable initiatives. Founded on the belief that a peaceful world is built on economic systems that prioritize human well-being over militarization, PEP works tirelessly to educate the public, influence policy, and support grassroots movements that seek to transform our economy from one driven by defense spending to one that invests in the health, education, and prosperity of all people.

Through research, advocacy, and community engagement, PEP addresses the root causes of violence and economic inequality. Our initiatives include public awareness campaigns, educational events, and strategic partnerships with like-minded organizations to challenge the status quo and promote a vision of a peace economy – where resources are allocated to meet the real needs of communities rather than fueling conflict and warfare.

At the core of our mission is the belief that every dollar spent on war and defense could instead be invested in building a more just and equitable society. Whether advocating for nuclear disarmament, supporting renewable energy projects, or mobilizing local communities to push for budget reforms. PEP is committed to creating a future where peace and prosperity are joined as one. We think that together, we can build a world where economic power is used not to destroy but to uplift and empower every member of our global community.

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Executive Director's Statement

As the Executive Director of the Peace Economy Project, it is my distinct honor to introduce the "Missouri's Military Economics: A 2023 Overview of the Economy, Market, and Key Stakeholders". This report provides a critical analysis of Missouri's economic ties to the military sector, offering valuable insights into the financial and structural influence this industry exerts on our state.

Missouri's role in the military economy stems from its strategic location and skilled workforce. However, while this sector significantly impacts the job market and technological growth, it is essential to critically assess the broader implications of a system that prioritizes military spending over investments in essential social services. At Peace Economy Project, we firmly believe that true security lies in the well-being and resilience of our communities—founded on education, healthcare, and infrastructure—not solely in military expenditures.

This report is intended as a tool for policymakers, business leaders, and citizens to engage in informed discussions about the opportunity costs of military-related spending in Missouri. We hope it will inspire a shift toward rebalancing state resources, directing funds to areas that cultivate long-term social and economic stability, rather than perpetuating a heavy reliance on military industries.

I extend my deepest gratitude to the author, Eric Lin, and to our dedicated Peace Fellows, Yuchen Jiang, and Yiting Hu, whose research has been instrumental in fostering these important conversations. Their work reflects our commitment to promoting a more just and peaceful economic system.

Thank you to all our supporters, and to everyone committed to building a more equitable and sustainable future for Missouri and beyond.

Warm regards,

Katerina Canyon
Executive Director

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Executive Summary

Missouri's economy is heavily intertwined with military-related industries, creating both opportunities and vulnerabilities. This report provides an in-depth analysis of the state's military-related sector, focusing on its dependence on Department of Defense (DoD) contracts, the concentration of industry players like Boeing, and the significant contributions of military installations to local economies. While the military-related industry has been a substantial economic driver, this reliance raises concerns about sustainability, economic resilience, and the opportunity costs of underinvestment in critical social sectors such as education, healthcare, and infrastructure.

Key findings of the report include:

- A significant portion of Missouri's economy is concentrated in military-related manufacturing and professional services, with Boeing accounting for over 80% of the state's military-related contracts.
- Military installations, such as Whiteman Air Force Base and Fort Leonard Wood, provide localized economic benefits but limit economic diversification.

- Despite the substantial funding directed toward the military-related sector, the multiplier effects often fall short of the potential impacts of equivalent investments in social services or renewable energy initiatives.

The report advocates for a strategic shift toward a peace economy, emphasizing the need to diversify Missouri's economic base and reallocate resources to foster sustainable growth. Redirecting funds from military spending to community-focused sectors can not only create more resilient local economies but also address pressing social challenges.

This analysis invites policymakers, stakeholders, and community leaders to reimagine Missouri's economic future – one that prioritizes equity, sustainability, and the well-being of all its residents.

Introduction

Missouri's military-related sector has played a significant role in shaping the state's economy, driven largely by its strategic importance within the United States. The historical development of this sector in Missouri is rooted in its central location in the Midwest, which offers national accessibility for the movement of goods and people. Missouri's proximity to the Mississippi River, a critical transportation and supply route for both commercial and government use, has further enhanced the state's logistical efficiency for moving personnel and equipment across the region.[1] Additionally, Missouri's resilience to natural disasters and its varied terrain provide diverse environments for different training and operational scenarios.

The presence of military installations in the region has attracted private sector investment into local manufacturing, particularly in response to the demand for military-related products. Over time, Missouri has developed and sustained a significant supply chain between military contracts, contractors, and their subcontractors, contributing to a skilled workforce in aerospace, engineering, and advanced manufacturing.[2] As the military-related sector continues to operate, local universities and research institutions – such as Center for Aerospace Manufacturing Technologies at Missouri S&T, Washington University in St. Louis, and State Technical College of Missouri – have contributed to research and innovation to support technological development in aerospace and military-related economic industries.[3]

Missouri's government policies, including tax incentives, grants, and workforce development programs, have supported the growth of this military-related ecosystem, fostering public-private partnerships.[4] Since the mid-20th century, Missouri has hosted major military installations and contractors involved in military-related industries.

This report provides an overview of Missouri's military-related sector, focusing on its regional economic influence, key military installations, and the state's contract market. The research is divided into the following sections: 1) how the military-related sector contributes to the state's economy through employment, payroll, and output; 2) the roles of major military installations' and their local economic impact; and 3) the contractual relationship between local contractors and federal departments and agencies.

Military-Industrial Economy

Military-Related Sector 101

A military-related sector consists of the infrastructure that supports military operations, along with the private industries that supply products and services. In Missouri, the sector includes the six branches of the U.S. armed forces, the Missouri National Guard, and the federal civilians employed by the Department of Defense (DoD). The DoD is responsible for establishing policies related to national security and overseeing procurement processes. It manages all military-related activities and operations, with a significant role in shaping the economic landscape of the state through federal contracts.

While the military is a key consumer of products and services from the private sector, there is a need to critically examine the reliance on military-related industries. The private sector works closely with contractors and government agencies to meet the military's demands for new technologies and equipment. However, at the Peace Economy Project, we emphasize the importance of directing resources toward social infrastructure that supports community well-being rather than continuing an over-dependence on military-related industries

This section outlines the structure of Missouri's military-related sector while encouraging reflection on how resources can be reallocated to benefit broader social needs (see Appendix for a graphical illustration of DoD's organizational structure).

Table 1. The Missouri Military-Related Sector

Military Infrastructure
Department of Defense
Missouri National Guard (Army & Air)
Active Duty (Army, Navy, Marine Corps, Air Force, Space Force, Coast Guard)
Private Military-Related Industry
Major Military-Related Activities
Search, Detection, Navigation, Guidance, Aeronautical, & Nautical System & Instrument Manufacturing (NAICS 334511)
Aerospace Product and Parts Manufacturing (NAICS 3364)
Ship Building and Repairing (NAICS 336611)
Engineering Services (NAICS 54133)
Computer Systems Design and Related Services (NAICS 54151)
Research and Development in the Physical, Engineering, and Life Sciences (NAICS 54171)
Other Military-Related Activities
Small Arms Ammunition Manufacturing (NAICS 332992)
Ammunition (except small arms) Manufacturing (NAICS 332993)
Small Arms, Ordnance, and Ordnance Accessories Manufacturing (NAICS 332994)
Other Ordnance and Accessories Manufacturing (NAICS 332995)
Military Armored Vehicle, Tank, and Tank Component Manufacturing (NAICS 336992)
Military-Related Sector = Military Infrastructure + Private Military-Related Industry

Note: In this report, the military infrastructure excludes the reserves.
Source: Department of Defense and Author's Research

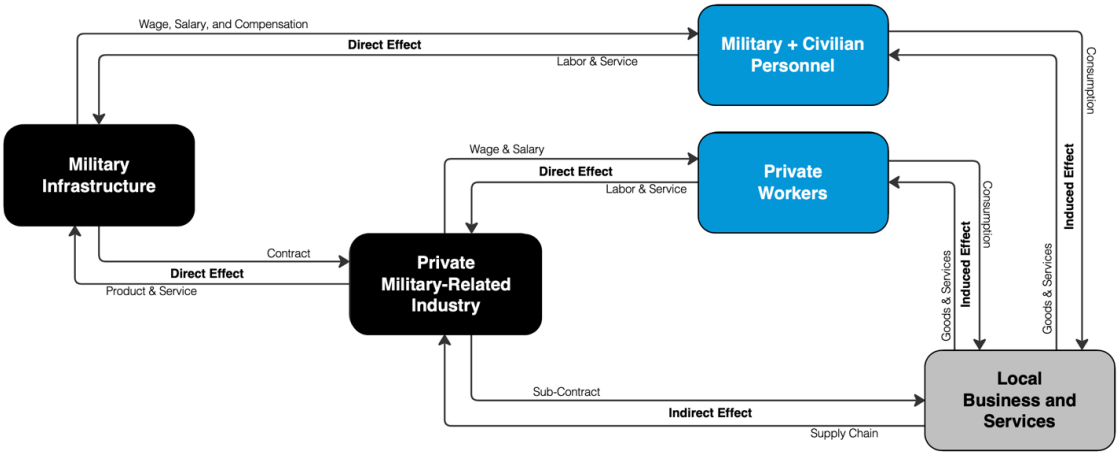
The concentration of military contractors' operations in a region forms the private military-related industry. These are private companies that design, manufacture, and provide products and services for military purposes, including aircraft, ships, vehicles, missiles, firearms, and various technical consultations. As such, contractors' activities primarily take place within the manufacturing and professional and technical services industries. Table 1. provides a detailed breakdown of the subcomponents within these two industries.

In addition to manufacturing and providing professional services, military contractors invest heavily in Research and Development (R&D) to develop new technologies. This includes

advancements in areas such as materials, propulsion systems, artificial intelligence, and cybersecurity.

Like other industries, the military-related sector plays a role in regional economies. Every year, Congress allocates funding for the DoD, issuing contracts to procure new products and services, maintain operations, and pay personnel. The flow of funds from Congress into the military-related sector constitutes the direct economic effect. That is, the sector employs military personnel, federal civilians, and private workers who earn income in exchange for services, contributing to the state's Gross Domestic Product (GDP), employment rates, and income levels.

Figure 1. Military-Related Sector Economic Links



Source: Department of Defense and Author's Research

Since military-related contractors themselves rely on suppliers of raw materials and other mechanical components, the initial contracts facilitate the creation of subcontracts that subsequently support the secondary industries – the private military-related industry's supply chain – in employment, payroll, and output, which constitute the second round of economic effect, or the indirect effect. The workers in supporting industries, along with the military-related sector employees, spend their income predominantly on local businesses and services, such as grocery shopping, entertainment, and restaurants. The rising consumer demand due to increased disposable income benefits local businesses in the same way the previous industries do. This counts as the third round of economic effect, or the induced effect, completing the

impact cycle initiated by the military infrastructure and trickling down through the economy. In the following section, the report presents in detail the military-related sector's economic engagement in output, employment, and payroll in Missouri.

Economic Engagement

Missouri's military-related sector has grown significantly in recent years, driven by increasing national security demands and rising federal budgets. The state's well-established manufacturing and aerospace industries, along with its AAA bond rating and favorable tax climate, have made the region attractive for long-term investment in military-related industries.[1] The war in Ukraine and subsequent increases in Congressional funding for national security have further stimulated production in Missouri's military-related sector.[2]

The global demand for military equipment has also led private companies within this sector to hire more specialized labor to scale up production. In recent years, rising geopolitical tensions and the growth of the aerospace industry in the Midwest have resulted in nearly 33,000 new military-related jobs created in Missouri.[3] Due to the nature of the work – manufacturing high-precision equipment and developing advanced technologies – employees in the military-related sector typically receive higher-than-average pay compared to other industries. Additionally, the 2023 National Defense Authorization Act raised basic pay and bonuses for military personnel, further boosting financial support for officers and soldiers stationed in Missouri financially.[4]

This section details each military-related subindustry's output, employment, and payroll, and compares the size of the private military-related industry with other major industries in the local economy.

1. Output

Table 2. Missouri's Military-Related Sector Output Breakdown

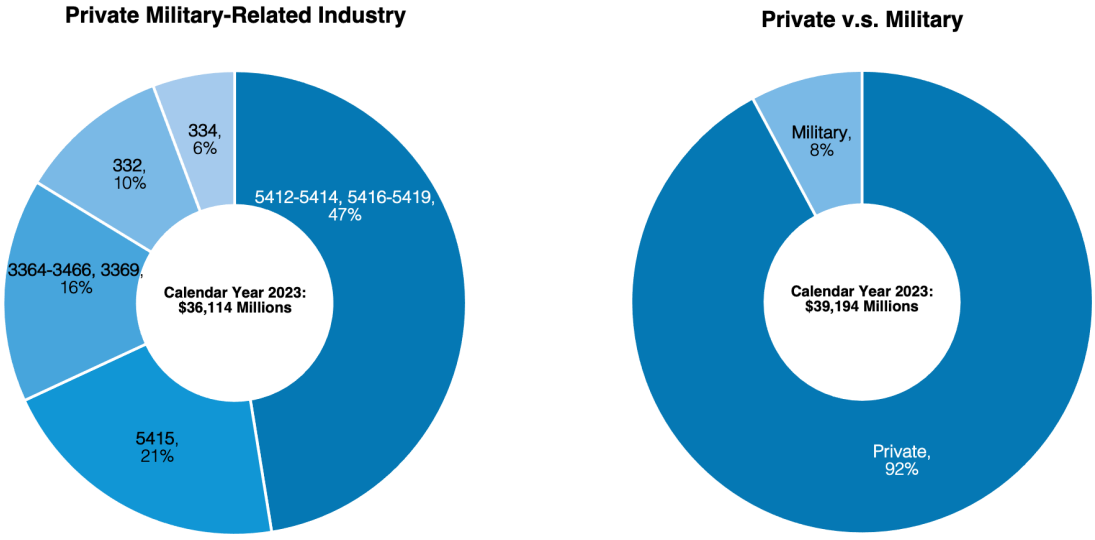
	Output (Current U.S. Dollars, Millions)
Fabricated Metal Product Manufacturing (NAICS 332)	3,815.7
Computer and Electronic Product Manufacturing (NAICS 334)	2,068.7
Other Transportation Equipment Manufacturing (NAICS 3369)	5,635.6
Miscellaneous Professional, Scientific, and Technical Services (NAICS 5412-5414, 5416-5419)	17,132.9
Computer Systems Design and Related Services (NAICS 5415)	7,460.7

Private Military-Related Industry Total	**36,113.6**
Military	3,079.9
Military Infrastructure Total	**3,079.9**
Total of Military-Related Sector	**39,193.5**

Note: The values for NAICS 332, 334, 3369, 5412-5414, 5416-5419, and 5415 are imputed using linear interpolation.
Source: Bureau of Economic Analysis

The Bureau of Economic Analysis (BEA) provides output data by a combination of 3-digit and 4-digit North American Industry Classification System (NAICS) codes.[5] Using the available data, this report utilizes the output of Fabricated Metal Product Manufacturing (NAICS 332), Computer and Electronic Product Manufacturing (NAICS 334), Other Transportation Equipment Manufacturing (NAICS 3369), Computer Systems Design and Related Services (NAICS 5415), and Miscellaneous Professional, Scientific, and Technical Services (NAICS 5412-5414, 5416-5419) to approximate the total output Missouri's military-related private sector. As a result, the output of Missouri's military-related private sector will certainly be overestimated. As Figure 2. shows, the private military-related industry's output in 2023 was $36,113.6 million, while the output for the military infrastructure was $3,079.9 million. Combined, the military-related sector produced $39,193.5 million worth of goods and services, contributing 9% of Missouri's state GDP in 2023.

Figure 2. Output in Missouri's Military-Related Sector (%)

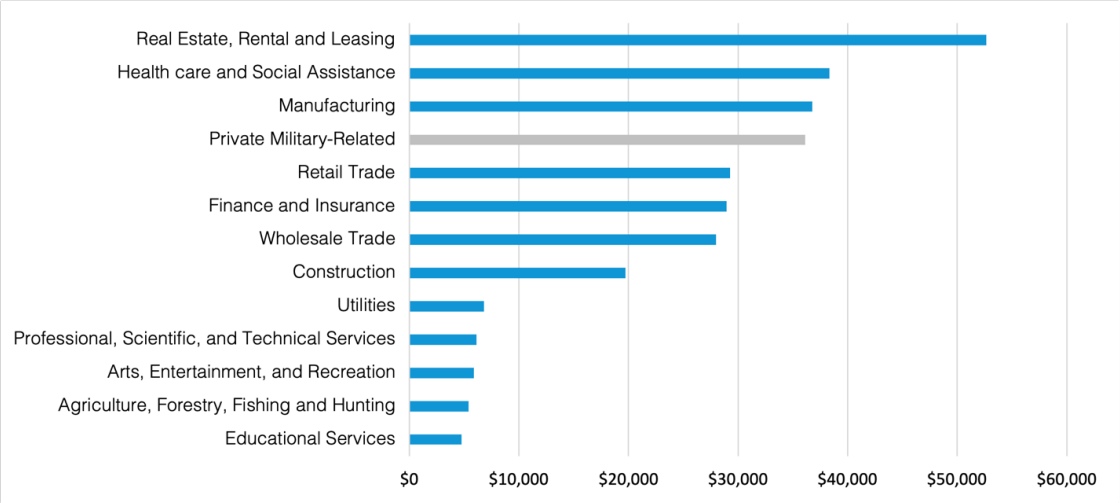


Source: Bureau of Economic Analysis

From Figure 2. the Miscellaneous Professional, Scientific, and Technical Services industry accounts for 47% of the total output of Missouri's military-related private sector. This includes Engineering Services (NAICS 54133) and Research and Development in the Physical, Engineering, and Life Sciences (NAICS 54171). While the numerical output for each subindustry may be somewhat overestimated, the relative proportion of each subindustry as a percentage of total output remains consistent. The left pie chart illustrates those services from NAICS 5415, 5412-5414, and 5416-5419, which contribute 68% of the total output in the private military-related sector. Unsurprisingly, within the military-related sector, the private industry dominates, contributing 92% of total output, compared to 8% from military infrastructure.

Compared to other major industries in Missouri, Figure 3. shows that the private military-related industry is ranked the 4th highest-output industry in 2023, exceeding that of the traditional high-output industries such as Finance and Insurance (NAICS 52) and Retail Trade (NAICS 44-45).

Figure 3. Output by Major Industries, in Millions



Note: The output for the Manufacturing and Professional, Scientific, and Technical Services industries are recalculated, excluding the overlap in the private military-related industry.
Source: Bureau of Economic Analysis

2. Employment

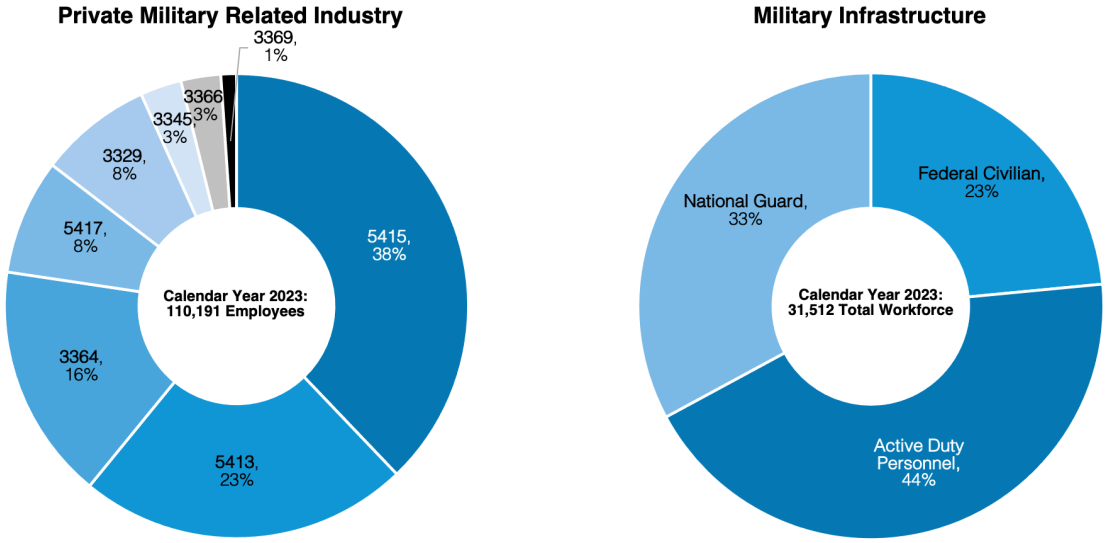
Table 3. Missouri's Military-Related Sector Average Annual Employment Breakdown

	Average Annual Employment
Computer Systems Design and Related Services (NAICS 5415)	41,717
Architectural and Engineering Services (NAICS 5413)	25,410
Aerospace Product and Parts Manufacturing (NAICS 3364)	18,109
Scientific Research and Development Services (NAICS 5417)	8,854
Other Fabriacted Metal Product Manufacturing (NAICS 3329)	8,674
Electronic Instrument Manufacturing (NAICS 3345)	3,175
Ship and Boat Building (NAICS 3366)	3,061
Other Transportation Equipment Manufacturing (NAICS 3369)	1,191
Private Military-Related Industry Total	**110,191.0**
Federal Civilian	7,401
Active Duty	13,751
National Guard	10,360
Military Infrastructure Total	**31,512.0**
Total of Military-Related Sector	**141,703.0**

Source: Missouri Economic Research and Information Center and Defense Manpower Data Center

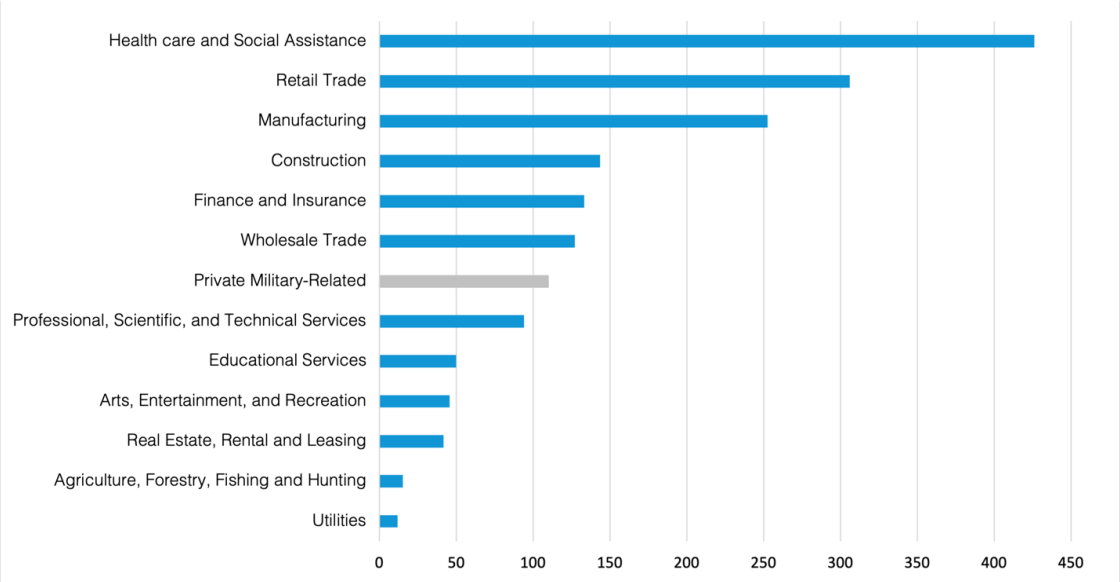
The Missouri Economic Research and Information Center provides data on average annual employment and average weekly wage in 2023 by 4-digit NAICS codes.[6] While using 6-digit NAICS codes would provide a more precise estimate, such detailed data is either unavailable or inaccessible to the public. According to available data, industries related to national security and economic resilience include Other Fabricated Metal Product Manufacturing (NAICS 3329), Electronic Instrument Manufacturing (NAICS 3345), Aerospace Product and Parts Manufacturing (NAICS 3364), Ship and Boat Building (NAICS 3366), Other Transportation Equipment Manufacturing (NAICS 3369), Architectural and Engineering Services (NAICS 5413), Computer Systems Design and Related Services (NAICS 5415), and Scientific Research and Development Services (NAICS 5417) industries. In 2023, the sectors employed, 110,191 workers – 4% of the state's private sector workforce. Additionally, 7,401 federal civilians work in related capacities for the DoD, alongside 13,751 military personnel, and 10,360 National Guard members, representing 2% of Missouri's population.

Figure 4. Average Annual Employment in Missouri's Military-Related Sector (%)



Source: Missouri Economic Research and Information Center

Figure 5. Average Annual Employment by Major Industries, in Thousands



Note: The output for the Manufacturing and Professional, Scientific, and Technical Services industries are recalculated, excluding the overlap in the private military-related industry.
Source: Missouri Economic Research and Information Center

As shown in Figure 3. 69% of workers in Missouri's industry supporting government and military contracts are engaged in providing professional and technical services. The remaining 31% are

involved in manufacturing products such as aircraft, specialized equipment, and weapons. Given the significant demand for military equipment by military bases and military-related agencies – especially for aircraft manufacturing, Figure 3. along with Figure 4. highlight the highly skilled nature of this workforce. Despite being the 7th largest employer in Missouri in 2023, the private military-related industry was able to produce output approximately the same size as that of the manufacturing industry, with military-related output excluded.

3. Payroll

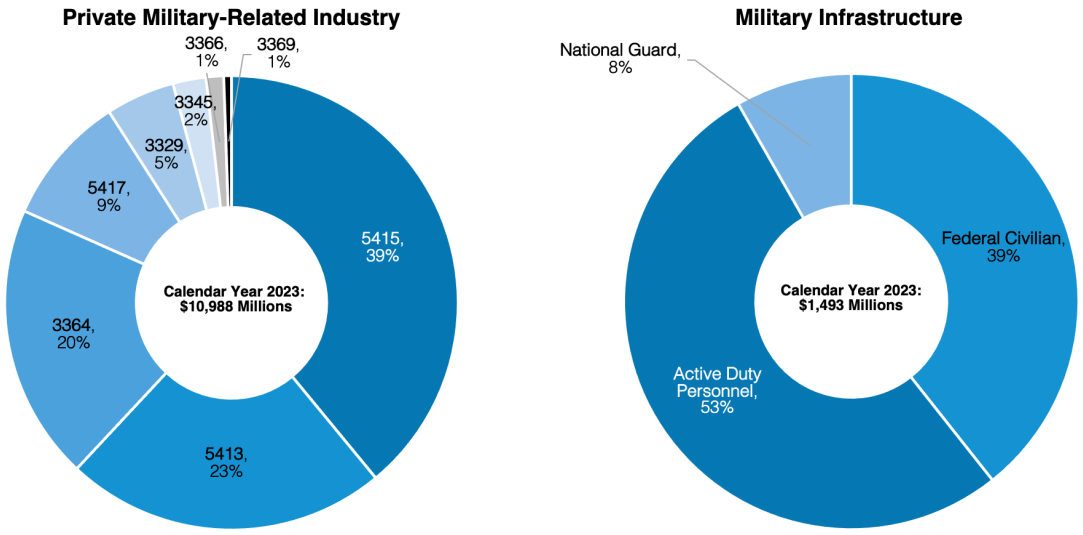
Table 4. Missouri's Military-Related Sector Average Annual Payroll Breakdown

	Average Annual Payroll (Current U.S. Dollars, Millions)
Computer Systems Design and Related Services (NAICS 5415)	$4,287.17
Architectural and Engineering Services (NAICS 5413)	$2,521.08
Aerospace Product and Parts Manufacturing (NAICS 3364)	$2,160.91
Scientific Research and Development Services (NAICS 5417)	$1,020.83
Other Fabriacted Metal Product Manufacturing (NAICS 3329)	$540.42
Electronic Instrument Manufacturing (NAICS 3345)	$258.78
Ship and Boat Building (NAICS 3366)	$138.41
Other Transportation Equipment Manufacturing (NAICS 3369)	$59.97
Private Military-Related Industry Total	**$10,987.57**
Federal Civilian	$587.09
Active Duty	$781.98
National Guard	$588.78
Military Infrastructure Total	**$1,957.85**
Total of Military-Related Sector	**$12,945.42**

Source: Missouri Economic Research and Information Center and Federal Workforce Data

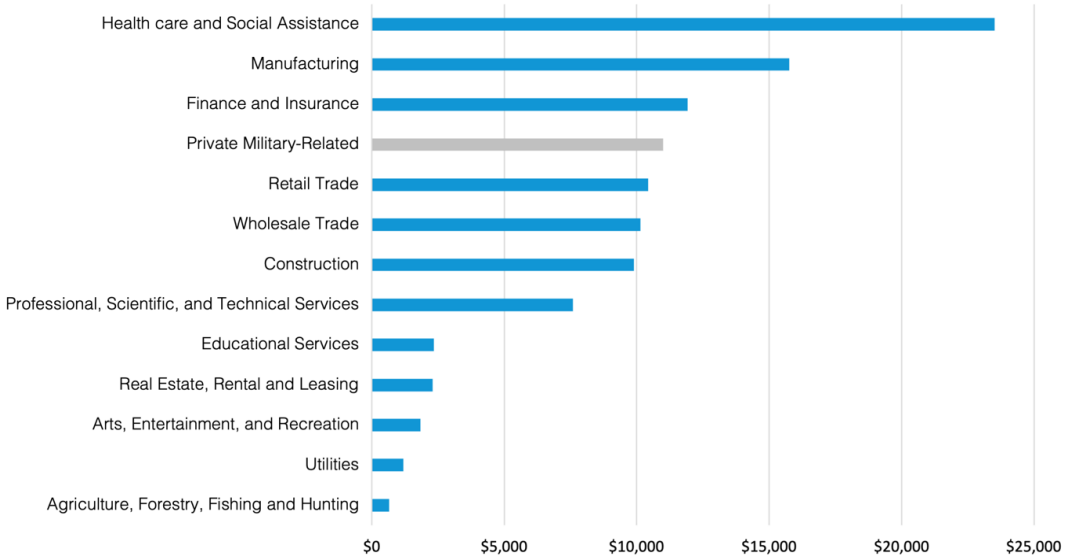
The payroll for each subindustry within the government contracting was calculated by taking the Missouri Economic Research and Information Center's average weekly wages, multiplied by 52 weeks and average annual employment. This simplified method provides a comparative payroll measure across industries. In 2023, companies engaged in these contracts paid out $10,988 million to their employees, while personnel involved in military-related services received $1,958 million. (See Appendix for the payroll calculation method for the military infrastructure in detail). This data highlights the significant financial resources tied to this sector, offering opportunities for thoughtful reallocation toward peace-driven economic alternatives.

Figure 6. Average Annual Payroll in Missouri's Military-Related Sector (%)



Source: Missouri Economic Research and Information Center

Figure 7. Average Annual Payroll by Major Industries



Note: The output for the Manufacturing and Professional, Scientific, and Technical Services industries are recalculated, excluding the overlap in the private military-related industry.
Source: Missouri Economic Research and Information Center

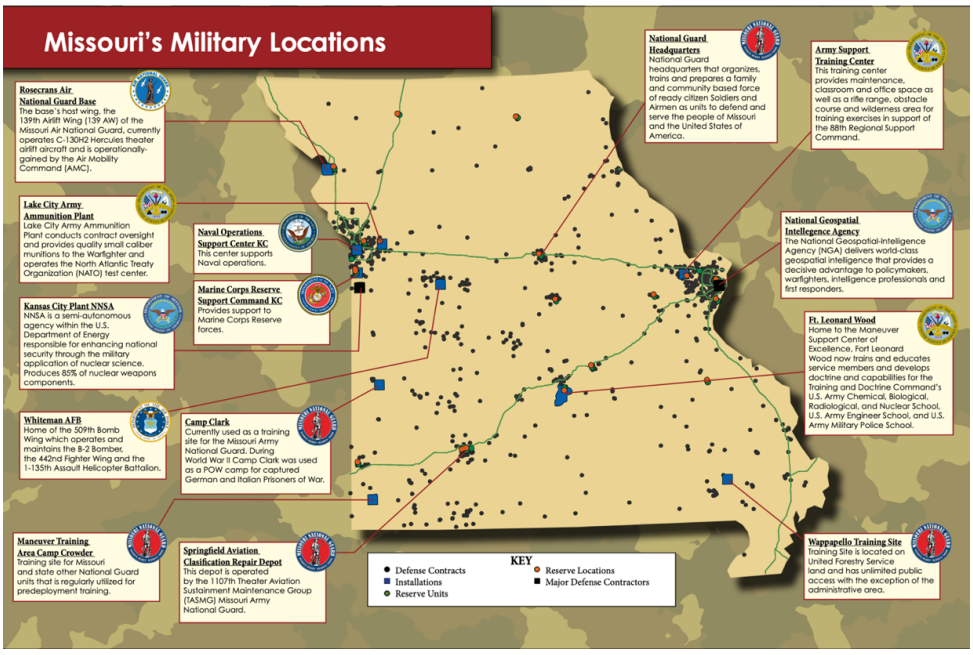
The distribution of payroll with companies contracting with the government reflects employment patterns with 71% allocated to employees in the Professional and Technical Services sector and

29% to workers in Manufacturing. In military-related services, payroll is distributed differently: 53% to active duty personnel, 39% to federal civilians, and 8% to the National Guard. Notably, companies involved in government contracts ranked among the 4th highest-paying industries in 2023, falling just behind finance and insurance, as shown in Figure 7.

Military Infrastructure

Selected Major Military Installations

Figure 8. Map of Missouri's Military Installations



Source: Office of Military Advocate, State of Missouri[1]

Military installations, often referred to as bases, play a crucial role in supporting national military infrastructure. These facilities host personnel, offer training grounds, and maintain supplies essential for sustained operations. Some are hubs for developing new technologies and strategic initiatives.

Missouri, home to some of the nation's leading contractors, hosts various such facilities. These bases are strategically located across different regions, supporting military missions, and providing essential services, including medical care, education, and housing, for service members and their families.

In 2023, Missouri's military infrastructure had 13,751 active duty personnel, 7,852 of whom served in the Army, 268 in the Navy, 1,357 in the Marine Corps, 4,063 in the Air Force, 201 in the Coast Guard, and 1 in the Space Force. In addition, 8,329 soldiers and officers served in the Army National Guard, and 2,031 served in the Air National Guard.[2]

Among the 14 military installations identified in Figure 8., the five largest military bases in Missouri are Fort Leonard Wood, Whiteman Air Force Base, Lake City Army Ammunition Plant, Rosecrans Air National Guard Base, and Jefferson Barracks. Together, they cover about 74,357 acres of land in the state.[3]

Table 5. Top 5 Military Installations in Missouri by Size

Base Name	Size (Acres)	Primary Military Function
Fort Leonard Wood	63,000	A major training hub for engineers, CBRN specialists, and military police, which is also in charge of all DoD truck driving training.
Whiteman Air Force Base	4,684	The only B2 Stealth Bomber in the country. A key element of the United States' nuclear deterrent force.
Lake City Army Ammunition Plant	3,935	The largest small arms (5.56-20 mm) manufacturing plant in the world, responsible for manufacturing and testing small-caliber ammunition for the U.S. military.
Rosecrans Air National Guard Base	Approx. 2,400	Home to the 139th Airlift Wing and functions as a center for air mobility operations and training within the U.S. Air National Guard.
Jefferson Barracks	338	A hub for the Missouri National Guard and various Reserve units.

Note: CBRN stands for Chemical, Biological, Radiological, and Nuclear.
Source: The Center for Land Use Interpretation and Missouri Department of Natural Resources[4]

This section excludes financial data for Fort Leonard Wood, but provides insight into its broader local economic impact through available contracts, ensuring a balance between transparency and the acknowledgment of local economies, without glorifying military industries.

1. Fort Leonard Wood

Fort Leonard Wood (FLW), also known as The Army's Home, is a major U.S. Army installation in the Ozarks, and the largest military base in Missouri. It functions as a key training hub for military policymakers, engineers, and Chemical, Biological, Radiological, and Nuclear (CBRN) specialists, with around 32,000 soldiers receiving training each year[5].

As the home of the U.S. Army Training and Doctrine Command's (TRADOC) Maneuver Support Center of Excellence (MSCoE), FLW supports three army schools, three initial military training brigades, and a reception battalion, as well as all DoD truck driving training and numerous academies specializing in CBRN and military police functions[6].

One of the major academies FLW hosts is the U.S. Army Civilian Police Academy, which provides training in antiterrorism, physical security, and force protection for the Department of the Army civilian police officers. Additionally, FLW offers training opportunities for civilians through various leadership development programs supported by the U.S. Army Corps of Engineers (USACE), a public engineering agency that provides services in land management, environmental protection, and military facility construction.[7]

Being Missouri's largest base by land area requires extensive management and maintenance. Each year, FLW posts contracts for local and out-of-state businesses to bid on. These contracts are divided into three broad categories: Physical Goods and Materials, Operational and Maintenance Services, and Professional and Technical Services. Table 6. lists detailed contract categories provided by Deltek that are available for bidding for FLW.[8]

Table 6. Contracts by Service/Industry

Building Products	Laboratory Products	Construction Services
Chemical Products	Security and Safety Products	General Building Services
Chemicals	Ground Vehicles	Operation and Maintenance Services

Furniture Products	Indoor Furniture	Educational Services
Industrial Products	Building and Construction Services	Information Technology Services
Information Technology Products	Building Maintenance Services	Professional Services

Source: Deltek, GovWin IQ

Examples of specific contracts available for bidding for FLW by the time of this writing are Construct Classroom Addition-Regional Training Site-Maintenance, Install Solar Array Army Aviation Support Facility, and Repair FLW Readiness Center's Range 18A Erosion.

2. Whiteman Air Force Base

Whiteman Air Force Base (AFB) is a joint-service installation that includes units from the Air Force, Army, and Navy. Its main unit, the U.S. Air Force's 509th Bomb Wing (509 BW) is responsible for operating the B-2 Stealth Bomber, a key element in the United States 'strategic military operations. The B-2's ability to conduct global strike missions directly from Missouri highlights the base's critical role. In addition, Whiteman AFB hosts a variety of tenant units including the Missouri Air National Guard's 131st Bomb Wing (131BW), the Air Force Reserve Command's 442nd Fighter Wing (442 FW), the Missouri Army National Guard's 1/135th Aviation Battalion, and the U.S. Navy Reserve's Mobile Inshore Undersea Warfare Unit 114.

Named in honor of 2nd Lieutenant George A. Whiteman, one of the first American airmen killed during the attack on Pearl Harbor, Whiteman AFB is a vital installation of the United States Air Force for being the only B-2 Stealth Bomber base in the country. This state-of-the-art aircraft is a critical component of the U.S. Air Force's global strike capabilities in that Whiteman AFB can launch combat sorties directly from Missouri to any part of the globe, engaging adversaries with nuclear or conventional weapon payloads.[9]

Originally serving as a training site during World War II, it has evolved into a premier air base over the decades, with a mission that encompasses not only strategic bombing but also supporting a range of other critical functions, including maintaining nuclear deterrence, training, and hosting multiple tenant units. In addition, Whiteman AFB was once a major missile silo base, responsible for 150 Intercontinental Ballistic Missile silos located within a 5,300 square-mile area around the base.[10]

As of 2023, Whiteman AFB has 3,240 active-duty personnel, 304 national guard and reserve members, and 1,448 non-extended national guards and reserves serving on the base. It also has a total of 2,584 civilians, including appropriated and non-appropriated fund civilians, contract civilians, and private business civilians working on-site with the military. Further, according to the base's 2023 economic reports, Whiteman AFB created an additional 2,278 jobs in 2023 that are worth a total value of $102 million[11].

Paying labor, creating job openings, and helping local businesses grow are the three major ways to ensure the continuation of a healthy economy. By creating job openings for civilians and handing out contracts to local businesses, Whiteman AFB generated a total of $909 million in economic impact on Missouri's economy in 2023. The biggest share of the base's economic impact came from its $655 million payroll to its personnel, including active duty, civilian workers, and retirees, which accounted for 72% of its total economic impact on the local economy in 2023.

Table 7. Whiteman Air Force Base, Economic Impact

		Share of Total Economic Impact
Total Payroll	$655,000,536	72%
Military Pay	$390,257,111	43%
Civilian Pay	$148,077,494	16%
Retiree Pay	$116,665,931	13%
Total Annual Expenditures	$151,989,653	17%
Local Contract Expenditures	$151,528,493	17%
Other Expenditures	$461,160	0%
Value of Job Creation	$102,345,984	11%
Total Economic Impact	**$909,336,173**	**100%**

Source: Whiteman Air Force Base, FY23 Economic Impact Report

The second largest spending item is local contracts. As Table 7. shows, local contract expenditures took up almost the entirety of the base's total annual expenditures in 2023. Recalling from Table 6., these local contracts can involve building a new training classroom, installing air-conditioning units, and providing IT consultations. Table 8. provides a detailed breakdown of Whiteman AFB's local contract expenditures in 2023.

Note that TRICARE is a healthcare program provided by the DoD, which offers comprehensive health coverage to eligible beneficiaries, which includes active duty service members, retirees, and their families, as well as National Guard and Reserve members, and their dependents. TRICARE integrates the military's direct care system with civilian health care services and providers to offer a wider range of medical services. According to Whiteman AFB's Fiscal Year 2023 Economic Impact report, the base included TRICARE expense as part of its local contract expenditures.

Table 8. Whiteman Air Force Base, Local Contract Expenditures

		Share of Total Local Contract Expenditures
Construction	$59,186,053	39%
Military	$43,049,654	28%
Operation and Maintenance	$16,136,399	11%
Other Construction	$0	0%
Service	$26,325,993	17%
Service Contracts	$17,342,661	11%
Utilities	$8,566,556	6%
Other Services	$416,776	0%
Commissary	$89,688	0%
Base Exchange	$1,161,767	1%
Health/TRICARE	$34,019,000	22%
Impact Aid/Tuition Assistance	$9,795,289	6%
Procurement	$20,950,703	14%
Total Expenditures	**$151,528,493**	**100%**

Source: Whiteman Air Force Base, FY23 Economic Impact Report

3. Rosecrans Air National Guard Base

Established during World War II, Rosecrans Air National Guard Base (ANGB) remains a crucial facility for the U.S. Air National Guard and military-related industry operations. It serves as the home to the 139th Airlift Wing (139 AW), a unit specializing in tactical airlift operations, which plays a dual role by supporting national missions and state-level emergency response efforts.[12]

The base's infrastructure accommodates various training exercises and joint operations, preparing for modern operational demands. The base also regularly hosts joint exercises involving multiple branches of the military and international partners, fostering a collaborative environment for the development of tactics and strategies.

Beyond its military significance, the base is also a significant employer in the St. Joseph area, playing a crucial role in local economic stability. In 2023, it paid out $66 million to its personnel, including soldiers, civilian workers, and retirees, and allocated about $6 million to support its service members pursuing a four-year undergraduate education. Further, the Wing's daily operation and maintenance supported the local economy by engaging in contracts with local suppliers. In 2023, 139 AW spent about $2.1 million on Construction and Capital Investment, $2.3 million on Operation and Maintenance, $3.7 million on AVPOL, and $2.2 million on Weapon System Sustainment. Most of these expenditures are transferred into local businesses' revenues.[13]

Table 9. 139th Airlift Wing, 2023 Expenditures

		Share of Total Expenditures
Salaries, Wages, and Monetary Benefits	$66,273,385	80%
Education Benefits	$5,920,000	7%
Construction and Capital Investment	$2,126,002	3%
Operation and Maintenane Expenditures	$2,259,924	3%
AVPOL	$3,734,320	5%
Weapons System Sustainment	$2,138,251	3%
Total Expenditures	**$82,451,882**	**100%**

Note: AVPOL stands for Aviation Petroleum, Oils, and Lubricants. According to Rosecrans ANGB, education benefits are based on enlisted personnel pursuing undergraduate education. The four-year process for a bachelor's degree was then broken down annually based on 60% of the total enlisted personnel utilizing their benefits.
Source: 139th Airlift Wing, 2023 Annual Report

According to the Wing's 2023 annual report, the base has an economic impact multiplier of 1.8 in 2023. This means that for every 1 dollar spent directly by 139 AW, an additional 0.8 dollar worth of economic activity is generated as local suppliers and their employees reinvest their earnings in the local community. Note that the economic impact multiplier here is a catch-all multiplier, meaning the induced monetary value of job creation that one saw in Table 7. and the spending on groceries by base employees are all captured in the additional 0.8 dollar worth of economic activity. Therefore, with a total expenditure of $82,451,882 in 2023, the Wing's total economic impact is $148,413,388, contributing about an additional $66 million worth of economic activity to the local community in 2023.

Private Military-Related Industry

Contract Market

A military-related contract is a legally binding agreement between a government entity and a private company or contractor to supply goods, services, or research and development related to national defense. Each military-related contract will be assigned either a letter “P” or “S” to indicate the contract is of a product type or a service type. Typical military-related products include military vehicles and naval vessels, aircraft, weapons and ammunition, etc. Military-related services, on the other hand, can range from maintenance and repair to consulting and advisory services, and from logistics and supply chain management to training and simulation.

In 2023, Missouri saw 23,243 contracts with military-related private companies. Out of 23,243 contracts, 19,956, or 86% of them, are of the product type and worth $7,382 million. The remaining 14%, or 3,286 contracts, are of the service type and worth $1,574 million.[1]

A contractor can specialize in manufacturing, providing professional and technical services, or both. In Missouri, there were 600 military contractors and private companies that engaged in contracts with various military-related departments and agencies in 2023. Within these 600 contractors, 174 of them only provide products, 382 only provide services, whereas the remaining 44 provide both products and services. Using the total contract amount as a proxy measure for a contractor's company size, Table 5. shows that Missouri's military-related contractors follow a "pyramid" distribution. That is, micro contractors take the bottom of the pyramid, occupying 48% of the total number of establishments in the contract market, whereas, at the tip of the pyramid, there is only one military-related contractor in the category. The higher up the ladder, the fewer contract market participants there are.

Table 6. Number of Military-Related Contractors in Each Contract Amount Bracket

	Establishments	Share of Total Establishments
Micro Contractor	289	48%
Small Contractor	161	27%
Medium Contractor	110	18%
Large Contractor	31	5%
Major Contractor	6	1%
Mega Contractor	0	0%
Giga Contractor	0	0%
Ultra Contractor	1	0%

Note: These brackets are designed according to the total contract amount each contractor received in 2023. Micro contractors received total contract amount between $0 - $50,000; Small contractors received total contract amount between $50,000 - $500,000; Medium contractors received total contract amount between $500,000 - $5,000,000; Large contractors received total contract amount between $5,000,000 - $50,000,000; Major contractors received total contract amount between $50,000,000 - $500,000,000; Mega contractors received total contract amount between $500,000,000 - $2,000,000,000; Giga contractors received total contract amount between $2,000,000,000 - $5,000,000,000; Ultra contractors received total contract amount between $5,000,000,000 - $8,000,000,000.
Source: Federal Procurement Data System and Author's Analysis

Geographically, Saint Louis, Springfield, and O'Fallon are the top three cities that received the most contracts in 2023. However, in terms of the contract amount, the 5,959 contracts Saint Louis received constitute 87% of the total contract money obligated to Missouri. This means 87% of the total contract money given to Missouri will flow into Saint Louis once the products are produced and services are completed. Although Springfield and O'Fallon together received 9,340 contracts, their combined less-than-1% contract money share indicates the scale of the underlying products or services is insignificant compared to that of the contracts Saint Louis received. Later in this section, the report shows that the primary reason Saint Louis absorbs the

majority of the contract money is because the Boeing company is such an extreme outlier in Missouri's military-related contract market.

Table 7. Top 10 Missouri Cities for Most Contracts Received

	Total Contract Count	Share of Total Action Obligation
Saint Louis	5,959	87%
Springfield	4,883	0%
O'Fallon	4,457	0%
Salem	1,875	0%
Ellisville	1,111	0%
Kansas City	724	4%
Jefferson City	521	0%
Saint Ann	338	0%
Saint Charles	259	0%
Bridgeton	243	1%
The Rest Combined	2,872	7%

Source: Federal Procurement Data System and Author's Analysis

Key Actors

1. Government Agencies

In 2023, there are 3 military departments, 3 combatant commands, and 15 military-related agencies engaged in contracts with private companies and military contractors. As Table 7. shows, the military departments altogether take up about 93% of total contract money obligated to Missouri. This is because the contracts handed out by military departments – the Army, Air Force, and Navy – typically involve large-scale procurement contracts, long-term sustainment contracts, and contracts for specific operational needs, which can include everything from weapon systems to uniforms, vehicles, and IT systems.

Table 8. Defense Department, Command, and Agency, Action Obligation in 2023

	Product	Service	Total Action Obligation (Current U.S. Dollars, Millions)
Military Department			
Department of the Air Force	4,590.07	460.97	5,051.04
Department of the Navy	1,792.00	470.64	2,262.64
Department of the Army	542.06	449.01	991.07
Combatant Command			
U.S. Transportation Command		4.03	4.03
U.S. Special Operations Command	0.51	1.94	2.45

U.S. Cyber Command	0.80		0.80
Military-Related Agency			
Defense Logistics Agency	430.76	28.63	459.39
Defense Information Systems Agency	21.49	80.50	101.99
Defense Health Agency	6.14	93.30	99.44
Defense Advanced Research Projects Agency		10.40	10.40
Defense Media Activity	0.83		0.83
Defense Human Resources Activity	0.23		0.23
Defense Counterintelligence and Security Agency		0.20	0.20
Uniformed Services University of the Health Sciences	0.01	0.09	0.10
Department of Defense Education Activity		0.09	0.09
Missile Defense Agency	0.00	0.05	0.05
Defense Finance and Accounting Service	0.00		0.00
Defense Microelectronics Activity		0.00	0.00
Defense Commissary Agency	0.00	(0.01)	(0.01)
Washington Headquarters Services		(2.01)	(2.01)
Defense Contract Management Agency	(2.75)	(23.53)	(26.29)
Total Action Obligation ($)	**7,382.15**	**1,574.30**	**8,956.45**

Source: Federal Procurement Data System

However, in terms of the number of contracts sent out in 2023, Table 8. shows that military-related agencies, more specifically, Defense Logistics Agency, assumed a dominant role by engaging in 17,844, or 77% of the contracts with private companies or military contractors based in Missouri. Military-related agencies typically focus on providing specialized support services across the DoD, such as fuel, food, medical supplies, and spare parts. Therefore, the characteristics of contracts coming from military-related agencies are about “large volume” but “small monetary amount”.

Table 9. Defense Department, Command, and Agency, Number of Contracts in 2023

	Product	Service	Total Contract Count
Military Department			
Department of the Army	482	1493	1,975
Department of the Air Force	651	899	1,550
Department of the Navy	796	523	1,319
Combatant Command			
U.S. Special Operations Command	7	11	18
U.S. Transportation Command		18	18
U.S. Cyber Command	1		1

Military-Related Agency			
Defense Logistics Agency	17,718	126	17,844
Defense Contract Management Agency	202	54	256
Defense Health Agency	39	85	124
Defense Information Systems Agency	44	38	82
Defense Advanced Research Projects Agency		16	16
Washington Headquarters Services		11	11
Defense Human Resources Activity	9		9
Missile Defense Agency	3	3	6
Defense Counterintelligence and Security Agency		3	3
Uniformed Services University of the Health Sciences	1	1	2
Defense Commissary Agency	1	1	2
Department of Defense Education Activity		2	2
Defense Microelectronics Activity		2	2
Defense Media Activity	1		1
Defense Finance and Accounting Service	1		1
Total Contract Count	**19,956**	**3,286**	**23,242**

Source: Federal Procurement Data System

Table 9. provides a more detailed breakdown of contracts by their job function (See Appendix for an explanation of constructing the taxonomy). Most of the military departments' contract money goes to procuring aerospace equipment, components, and weapons and ammunition, which constitutes 80% of the total contract amount. Military-related agencies, on the other hand, allocate more funding to procure medical and laboratory equipment and IT and telecommunications services, in addition to their needs for aerospace-related products and services.

Table 10. Department, Command, and Agency, Number of Contracts by Description

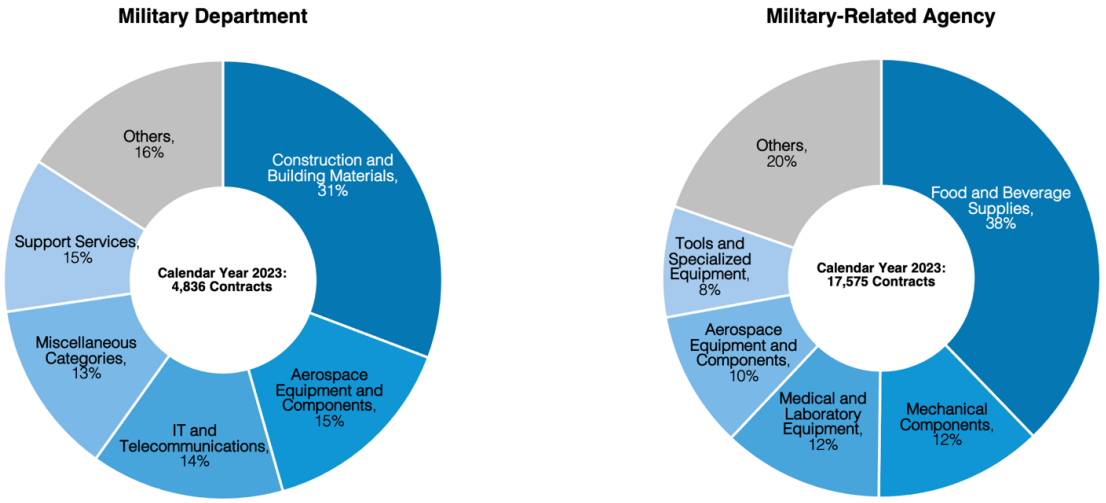
	Contract Description	Total Contract Count	Share of Total Action Obligation
Military Department	Aerospace Equipment and Components	690	59%
	Electrical and Electronic Equipment	172	3%
	Mechanical Components	49	0%
	Vehicles and Vehicular Equipment	33	0%
	Weapons and Ammunition	289	21%

	Construction and Building Materials	1,487	7%
	Tools and Specialized Equipment	115	1%
	IT and Telecommunications	620	2%
	Medical and Laboratory Equipment	93	0%
	Support Services	718	7%
	Food and Beverage Supplies	19	0%
	Miscellaneous Categories	551	1%
Combatant Command	Electrical and Electronic Equipment	1	0%
	Vehicles and Vehicular Equipment	5	3%
	Weapons and Ammunition	2	2%
	Tools and Specialized Equipment	1	2%
	IT and Telecommunications	12	70%
	Support Services	12	22%
	Miscellaneous Categories	4	1%
Military-Related Agency	Aerospace Equipment and Components	1,777	41%
	Electrical and Electronic Equipment	615	6%
	Mechanical Components	2,179	2%
	Vehicles and Vehicular Equipment	654	1%
	Weapons and Ammunition	174	2%
	Construction and Building Materials	1,072	6%
	Tools and Specialized Equipment	1,439	1%
	IT and Telecommunications	109	17%
	Medical and Laboratory Equipment	2,081	18%
	Support Services	78	1%
	Food and Beverage Supplies	6,641	3%
	Miscellaneous Categories	756	1%

Source: Federal Procurement Data System

Figure 8. provides a different insight into the number of contracts military departments and related agencies hand out in each category. While the two have a similar distribution of the contract count proportion for each category, for military departments, 31% of contracts go to construction and procuring building materials, such as office supplies, air conditioning, and kitchen appliances, whereas military-related agencies hand out 38% of contracts to food and beverage supplies, which is not shown up in the pie chart's main categories for the military department at all.

Figure 9. Share of Contract Count by Contract Description



Source: Federal Procurement Data System

2. Military-Related Contractors

The “product” market, meaning the section of the contract market that only concerns manufacturing products, is not very competitive in Missouri. As showcased in Table 10. the major contractor – Olin Corporation, which only received contracts of product type, has a total contract amount worth about 17 times less than that of the Boeing Companies. As a traditional aircraft manufacturing company, Boeing is the leading defense contractor in the market in Missouri by being the only player occupying the “Ultra Contractor” category with no companies catching up in the following two categories. In terms of the number of contracts received, Boeing still dominates the market with 4,116 contracts secured in 2023 and its subsidiary – Boeing Distribution Service Inc., receiving 2,438 contracts in the same year. Together, the Boeing Company received 7,190 contracts in 2023, leading the runner-up – Prairie Farms Dairy Inc. by 2,438 more contracts.

Note that in this report, military-related contractors are categorized by the total contract amount they secured in 2023, thus Table 10. also presents top contractors in each category. In addition to Boeing, Olin Corporation, World Wide Technology LLC, and Leonardo DRS are the top 3 contractors in the “Major” category. MRIGlobal, G.M.Johnson, and OM Group Inc, are the top 3 contractors in the “Large” category. In the Medium Contractor category, the top 3 companies are Compass Roofing LLC, Celeen LLC, and Lapoint-Blase Industries Inc. In the Small Contractor

category, Constructions Solutions Group, McCarthy HITT-Next NGA West Joint Venture, and Hunter Saak Investmnets LLC are the top 3 companies. Lastly, the top 3 “Micro” Contractors are Jahnke & Sons Construction Inc, Matran Inc, and Eberlin Boats & Motors Inc.

Table 11. Military-Related Contractors, Action Obligation in 2023

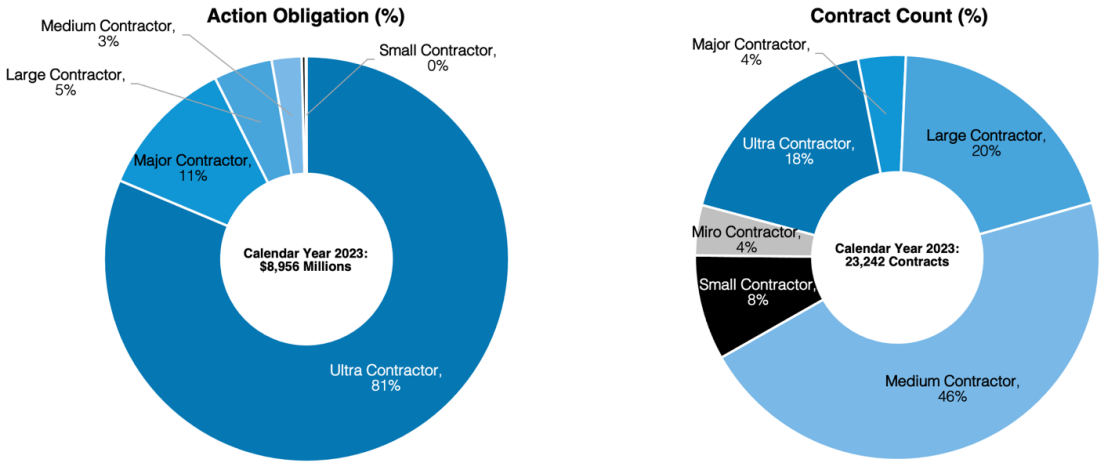
	Product	Service	Total Action Obligation (Current U.S. Dollars, Millions)
Ultra Contractor			
The Boeing Company	6,582.76	710.16	7,292.92
Giga Contractor			
None			
Mega Contractor			
None			
Major Contractor			
Olin Corporation	377.00		377.00
World Wide Technology LLC	141.07	88.37	229.44
Leonardo DRS	85.07	49.11	134.18
Burns & McDonnell		103.77	103.77
Express Scripts		90.73	90.73
United Excel Corporation		70.74	70.74
Large Contractor			
MRIGlobal		31.28	31.28
G.M.Johnson		25.05	25.05
OM Group Inc	22.31	0.00	22.31
Proaim Americas LLC	16.74	0.17	16.91
Zodiac-Poettker HBZ Joint Venture II LLC		21.89	21.89
The Rest Combined	84.63	217.54	302.17
Medium Contractor			
Compass Roofing LLC		4.87	4.87
Celeen LLC		4.75	4.75
Lapoint-Blase Industries Inc	1.30	3.30	4.61
Ducommun Labarge Technologies Inc	4.58		4.58
The Rest Combined	53.47	142.26	195.73
Small Contractor			
Construction Solutions Group		0.50	0.50
McCarthy HITT-Next NGA West Joint Venture		0.48	0.48
Hunter Saak Investments LLC	0.39	0.08	0.47
Huffman Construction LLC		0.46	0.46
The Rest Combined	12.71	14.03	26.74
Micro Contractor			
Jahnke & Sons Construction Inc	0.05		0.05
Matran Inc		0.05	0.05
Aero Express INC	0.05		0.05

Eberlin Boats & Motors Inc	0.05		0.05
The Rest Combined	(0.03)	(5.28)	(5.31)
Total Action Obligation ($)	**7,382.15**	**1,574.30**	**8,956.45**

Note: Empty entries indicate that the contractor did not engage in any contracts in that category in 2023. Values in bracket mean that there is a net refund back to DoD.
Source: Federal Procurement Data System

Looking at the contract market share by company size, Figure 9. shows that Boeing along secured 81% of DoD's contract budget appropriated to Missouri in 2023. Major contractors and large contractors together took out 84% of the remaining funds. However, medium contractors received the most contracts in 2023 by occupying almost half of the size of the pie. The runner-up is large contractors taking 20% of the contracts handed out to Missouri in the same year. Major contractors are the ones that receive the least number of contracts.

Figure 10. Contract Market Share



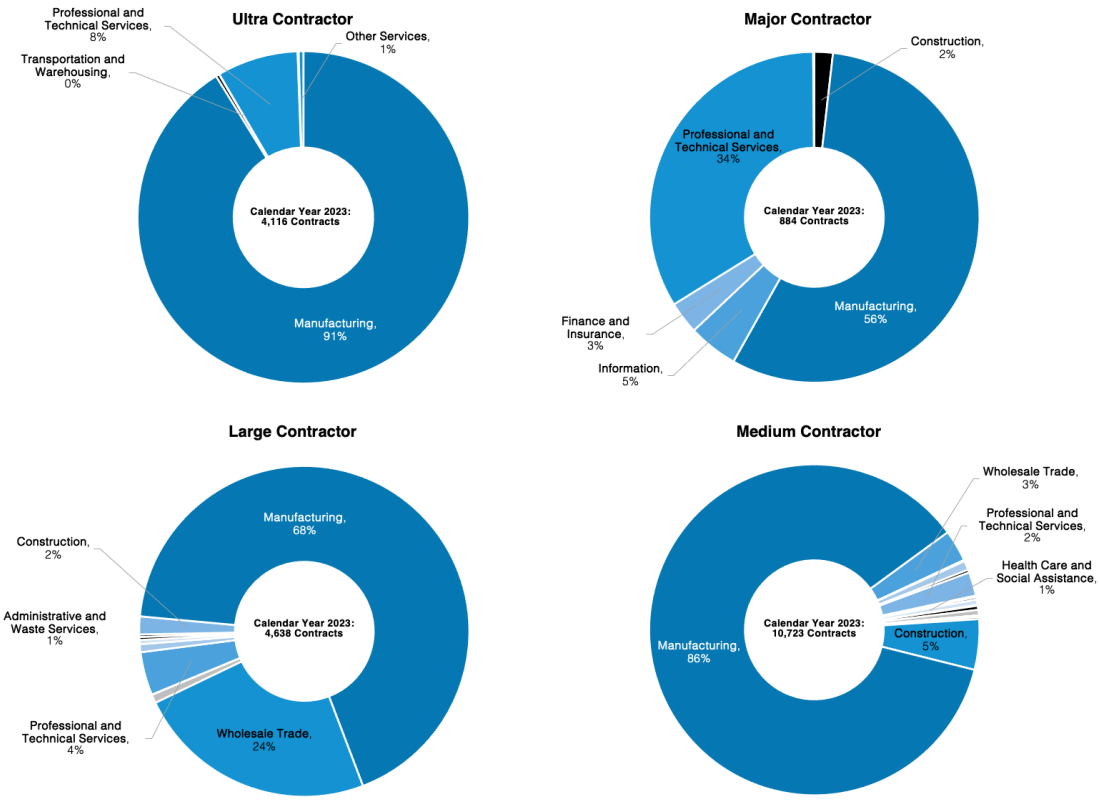
Source: Federal Procurement Data System

Each military-related contractor has activities across multiple industries. Figure 10. provides insights into which industries ultra, major, large, and medium contractors operate in to provide products and services. The ultra-contractor Boeing has 91% of contracts relating to operations in the manufacturing industry (NAICS 31-33) with the majority of the remaining contracts relating to providing professional and technical services (Further, see Appendix for how Boeing's contract money flows into different types of products and services). For major contractors, in addition to providing professional and technical services and manufacturing, they have activities

in the Finance and Insurance industry (NAICS 52) and the Information industry (NAICS 51) as well.

While manufacturing still plays a big part in large-contractor and medium contractor's contract obligations, providing professional and technical services is no longer their second priority. In 2023, 24% of large-contractor contracts relate to operations in the Wholesale Trade industry (NAICS 42). This includes wholesaling medical, dental, and hospital equipment, lumber, plywood, wood panels, and other grocery-related products. As to medium-contractor, the second largest slice is construction – including activities from plumbing and heating to oil and gas pipeline construction – and counts as 5% of the number of contracts they received in 2023.

Figure 11. Share of Contract Count by Industries



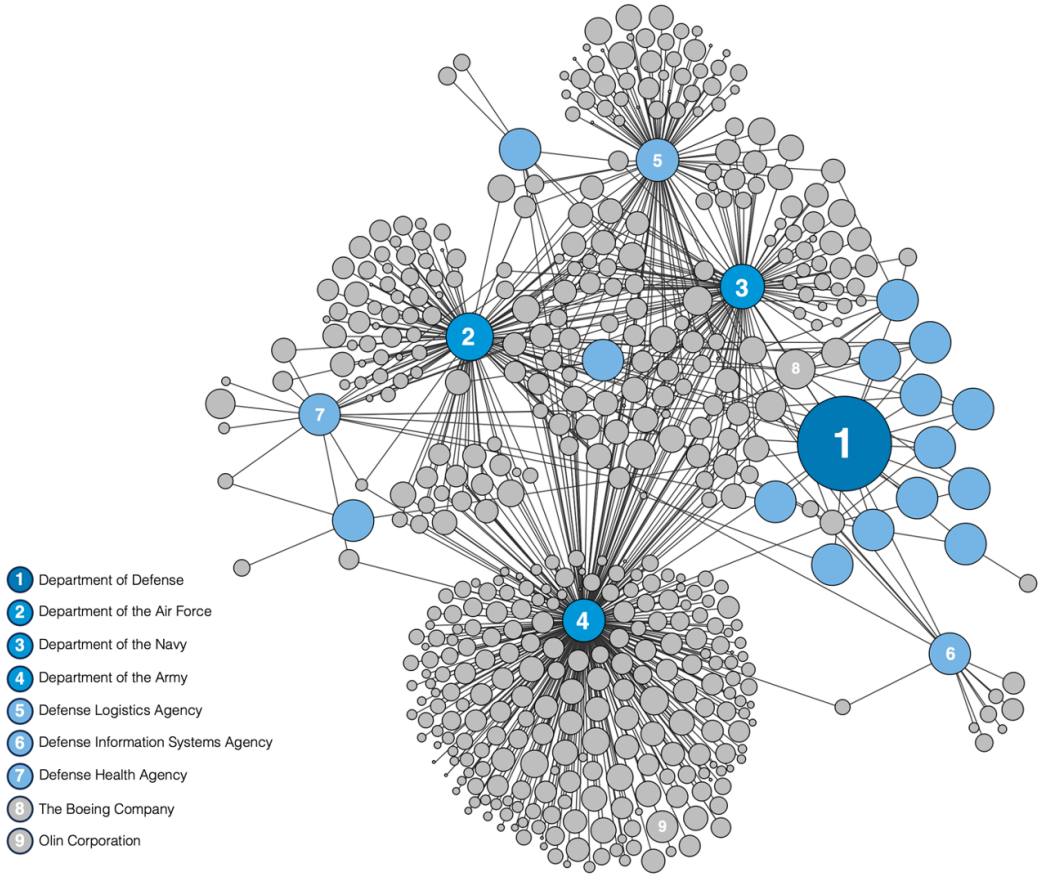
Source: Federal Procurement Data System

Lastly, the report ends the section by presenting a network map, highlighting the contractual relationship between 600 military-related contractors in Missouri and 21 military departments

and agencies. As one can see, the Department of the Army has the most extensive contract network – working with 376 military-related contractors, more than half of the contractors, based in the region. The Department of the Air Force and the Navy follow behind, with the former issuing contracts to 146 military-related contractors and the latter to 112 contractors.

Among the 15 military-related agencies, the Defense Logistics Agency issued contracts to 107 contractors in 2023, effectively being the leading agency engaged in the most extensive contract network. From a firm's perspective, the Boeing Company and World Wide Technology LLC are tied for first place, both engaging in contracts with 10 military departments and related agencies in 2023.

Figure 12. Military Contractual Relationship between Companies and Government



Note: Each labeled node is picked to represent either obligating to or being obligated the most contract money in 2023 in their respective category; Graph by Eric Lin.
Source: Federal Procurement Data System

Conclusion

Missouri's strategic location and its well-established network of military installations, military-related contractors, and supporting industries today have made its military-related sector a dynamic and integral component of the state's economy. The successful development of the sector, although owing to its historical and geographical reasons, is largely supported by a series of favoring government policies that attract private capital, strengthen public-private partnerships, and involve academia in researching and developing cutting-edge military-related technologies.

This report breaks down Missouri's military-related sector into the military infrastructure and the private military-related industry and provides a picture of the sector's regional economic engagement in its output, employment, and payroll. The study finds that Missouri's military-related sector enjoys a highly skilled workforce. This view is supported by the private military-related industry's use of less labor, compared to other major industries, to produce high output and generate high payroll. Further, the private military-related industry in Missouri collaborates

significantly with numerous military departments and related agencies through its extensive contractual network. In 2023, the Department of Defense incurred a $9 billion cost in contracts issued to private companies and military contractors in Missouri, and 81% of this $9 billion payment will eventually go to the Boeing Company for its military-related products and services. Due to the company's location, data also shows that most military-related contract awards and military-related activities are concentrated in specific regions like St. Louis.

Home to various major military installations, Missouri's military infrastructure also plays a critical role in the country's defense strategy by supporting training, logistics, and operations that are essential to maintaining national security and readiness. This report reviews the base operations and regional economic influence of Fort Leonard Wood (FLW), Whiteman Air Force Base (AFB), and Rosecrans Air National Guard Base (ANGB) and finds that the military bases in Missouri are highly integrated into the local economy. For example, 99.7% of Whiteman AFB's annual expenditure went to local businesses, which means that the base's daily functioning is highly dependent on local suppliers' support.

In summary, Missouri's military-related sector remains a cornerstone of the state's economy, supported by a robust combination of military infrastructure, private military-related industries, and extensive public-private partnerships. The strategic and historical significance of the region has paved the way for sustained growth and innovation in the sector. As highlighted throughout this report, Missouri's military-related sector is characterized by its high output, skilled workforce, and significant regional economic impact, particularly in regions like St. Louis. The presence of ultra military contractors such as Boeing in Missouri attracts military-related capital and ensures the market vibrance of the local military-related sector. The insights provided in this report aim to inform policymakers and stakeholders about Missouri's current military-related sector's economic outlook. Future studies will build on this report and explore the possibility of a balanced approach that leverages Missouri's military-related economic capabilities while also considering broader economic and social objectives.

About the Author

Eric Lin is a Senior Peace Fellow at the Peace Economy Project (PEP) and a recent graduate of Bard College with a Bachelor of Arts in Economics and Mathematics and a Bachelor of Music in Classical Viola Performance. He joined PEP in the summer of 2024 with a commitment to peace-building and advocating for reallocating excessive military spending towards social investment. Prior to his work with PEP, he interned at Harvard Business School and the Levy Economics Institute and conducted research on a variety of economics topics.

Appendix

Payroll Calculation Method

1. Federal Civilian

The U.S. Office of Personnel Management's FedScope, Federal Workforce Data, provides employment data by income bracket and state. For 2023, there are 16 income brackets – with an annual salary range of $40,000 to $200,000 – that have explicit data showing the number of federal civilians employed within each bracket. For the remaining income brackets that do not show explicit entry values, the number of employees with the respective salary range is either less than 4 or 0.

This report uses the mean value of each income bracket, multiplied by the number of employees, and summed across the entire bracket range to calculate the payroll for the whole DoD federal civilian body in 2023. Therefore, while each individual employee can have an annual salary above or below the mean value within each income bracket, on average, this

effect cancels out and will deliver a good estimate of the payroll paid out to DoD's federal civilians located in Missouri. For income brackets that do not show employment data due to values being less than 4 or equal to 0, this report distributes the number of missing employees – using total DoD federal civilian employment data provided by the Defense Manpower Data Center (DMDC) as a benchmark – evenly into the remaining income brackets.

2. Active Duty Personnel

Since employment data by income bracket and state is not directly available to active duty personnel, we first calculate the national distribution of active duty personnel by service and rank using the personnel data provided by DMDC. Then, we assume that the active duty personnel by service and rank in Missouri follow the same distribution. That is, if 1% of the active duty personnel in the United States are Chief Warrant Officers, then we assume that 1% of the active duty personnel in Missouri are of the same title as well. Using this method, we can approximate the number of personnel serving at each military rank in Missouri.

Then, we use the monthly basic pay schedule for active duty personnel and the monthly Basic Allowance for Subsistence (BAS) provided by DoD to estimate the total payroll issued to Missouri's active duty personnel in 2023. Note that BAS is inflation-adjusted annually and meant to offset service members' food costs. In 2023, the BAS for officers was $311.68 per month and $452.56 for enlisted soldiers. For simplicity's sake, we do not include BAS II and let go of the calculation of Basic Allowance for Housing (BAH), Basic Needs Allowance (BNA), and other types of subsidies. Therefore, this is a conservative estimate of the payroll, assuming active duty personnel only receive monthly basic pay and BAS. We also assume that active duty personnel have 14 years of service across the board. For ranks and titles that require more than 14 years of service, we choose the minimum years of service required when extracting values from the pay schedule.

3. National Guard

The same method to calculate the payroll for active duty personnel in 2023 was applied to Missouri's National Guard as well. The only difference is that, instead of monthly basic pay, DoD provides a pay schedule for 1 drill session for the National Guard and Reserves. Since there are typically 4 drill sessions per month, the modification needed is just to multiply the original value

by four to get the equivalent of a monthly basic pay schedule, then follow the same procedure presented in the last section. Table 13. presents the calculation process for Missouri's National Guard in 2023.

Table 13. National Guard Payroll Calculator

National Distribution of National Guard by Rank		
December 31, 2023		
Rank / Grade	**Total Personnel**	**National Distribution**
General - Adimiral	1	0%
Lieutenant General - Vice Admiral	5	0%
Major General - Rear Admiral (U)	145	0%
Brigadier General - Rear Admiral (L)	318	0%
Colonel - Captain	2,447	1%
Lieutenant Col - Commander	8,259	2%
Major - Lieutenant Commander	11,305	3%
Captain - Lieutenant	14,693	3%
1st Lieutenant - Lieutenant (JG)	9,658	2%
2nd Lieutenant - Ensign	7,077	2%
Chief Warrant Officer W-5	434	0%
Chief Warrant Officer W-4	1,702	0%
Chief Warrant Officer W-3	2,580	1%
Chief Warrant Officer W-2	2,537	1%
Warrant Officer W-1	1,654	0%
Officer Unknown Grade	0	0%
Total Officer	**62,815**	**15%**
E-9	4,051	1%
E-8	11,558	3%
E-7	37,290	9%
E-6	55,294	13%
E-5	78,981	18%
E-4	119,352	28%
E-3	34,036	8%
E-2	13,313	3%

National Guard Payroll Calculator			
Effective January 1, 2023			
Pay Grade	**Reserve Pay for 1 Drill**	**Total Personnel, MO**	**Total Salary**
O-10	589.17	0	$0
O-9	573.38	0	$0
O-8	486.42	3	$81,265
O-7	422.22	7	$168,047
O-6	332.9	59	$1,163,442
O-5	312.99	200	$3,752,736
O-4	298.37	274	$4,948,966
O-3	263.02	356	$5,825,983
O-2	193.31	234	$3,046,455
O-1	152.56	171	$1,891,780
W-5	297.07	10	$179,995
W-4	240.81	41	$627,261
W-3	216.09	62	$874,974
W-2	198.27	61	$808,684
W-1	185.39	40	$505,555
Sub-Total		**1,518**	**$23,875,143**
E-9	212.19	98	$1,530,352
E-8	182.49	280	$3,973,267
E-7	170.45	904	$12,305,537
E-6	149.87	1,341	$16,929,428
E-5	129.16	1,915	$22,272,216
E-4	101.31	2,894	$29,789,678
E-3	84.92	825	$7,843,176
E-2	71.64	322	$2,855,960

E-1	10,465	2%	E-1	63.92	253	$2,150,217
Total Enlisted	**364,340**	**85%**	**Sub-Total**		**8,832**	**$99,649,831**
Grand Total	**427,155**	**100%**	**Grand Total**		**10,350**	**$123,524,975**

Note: The National Guard includes the Army National Guard and the Air National Guard. The total salary column in the table has already incorporated BAS.
Source: Defense Manpower Data Center

Contract Job Description Taxonomy

Out of 23,243 contracts issued to Missouri's private companies and military-related contractors in 2023, 648 different PSC descriptions exist for each contract's job description. To better illustrate the job description of each military-related contractor's contract, we constructed an original taxonomy to classify each contract's PSC description into 12 categories – Aerospace Equipment and Components, Electrical and Electronic Equipment, Mechanical Components, Vehicle and Vehicular Components, Weapons and Ammunition, Construction and Building Materials, Tools and Specialized Equipment, IT and Telecommunications, Medical and Laboratory Equipment, Support Services, Food and Beverage Supplies, and Miscellaneous Categories. The following bullet points list example PSC descriptions that are put into each of the 12 categories.

1. Aerospace Equipment and Components
    - Aircraft Air Conditioning, Heating, and Pressurizing Equipment
    - Aircraft Alarm and Signal Systems
    - Aircraft Control Cable Products
    - Aircraft Ground Servicing Equipment
    - Aircraft Landing Gear Component
    - Aircraft Launching Equipment
    - Aircraft Wheel and Brake Systems

2. Electrical and Electronic Equipment
    - Rechargeable and Non-Rechargeable Batteries
    - Circuit Breakers
    - Electrical Connectors
    - Electrical Vehicular Lights and Fixtures

- Electrical Control Equipment
- Electronic Modules
- Electronic Tubes and Associated Hardware

3. Mechanical Components
    - Chain and Wire Rope
    - Coil, Flat, Leaf, and Wire Springs
    - Coils and Transformers
    - Diesel Engines and Components
    - Non-Aircraft Engine Cooling System Components
    - Non-Aircraft Engine Fuel System Components
    - Fastening Devices

4. Vehicles and Vehicular Equipment
    - Motor Vehicle Maintenance and Repair Shop Specialized Equipment
    - Navigational Instruments
    - Wheeled Trucks and Truck Tractors
    - Vehicular Brake, Steering, Axle, Wheel, and Track Components
    - Vehicular Furniture and Accessories
    - Vehicular Power Transmission Components

5. Weapons and Ammunition
    - Bombs
    - Guided Missile Components
    - Guided Missile Launchers
    - Rocket and Pyrotechnic Launchers
    - Guns, 75MM through 125MM
    - Guns, over 30MM up to 75MM
    - Ammunition, 75MM through 125MM
    - Weapon System Hardware

6. Construction and Building Materials

- Fixed and Floating Bridges
- Prefabricated Building Components
- Cabinets, Lockers, Bins, and Shelving
- Air Conditioning Equipment
- Fencing, Fences, Gates and Components
- Household Furniture
- Laundry and Dry Cleaning Equipment
- Office Devices and Accessories

7. Tools and Specialized Equipment
    - Cutting Tools for Machine Tools
    - Drilling and Tapping Machines
    - Grinding Machines
    - Forging Machinery and Hammers
    - Fixed or Mobile Gas Generating and Dispensing Systems
    - Power Driven Hand Tools
    - Commercial Hardware

8. IT and Telecommunications
    - Information Technology Software
    - Data Center Products
    - Data Center Support Services
    - Business Application Software
    - IT Management Tools
    - Platform Products: Database, Mainframe, Middleware
    - Security and Compliance Products

9. Medical and Laboratory Equipment
    - Drugs and Biologicals
    - Dental Instrument, Equipment, and Supplies
    - Imaging Equipment and Supplies: Medical, Dental, Veterinary
    - In Vitro Diagnostic Substances, Reagents, Test Kits and Sets

- Replenishable Field Medical Sets, Kits, and Outfits
- Laboratory Equipment and Supplies

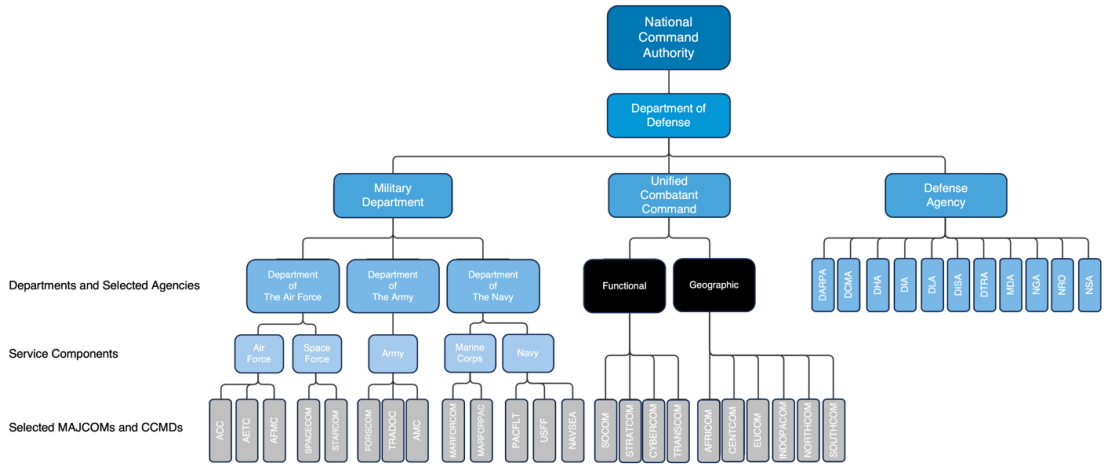
10. Support Services
    - National Defense R&D Services
    - General Science and Technology R&D Services
    - Management Support
    - Logistics Support
    - Combat Training
    - Lectures
    - Reserve Training (Military)

11. Food and Beverage Supplies
    - Food, Oils, and Fats
    - Fruits and Vegetables
    - Sugar, Confectionery, and Nuts
    - Soups and Bouillons
    - Meat, Poultry, and Fish
    - Jams, Jellies, and Preserves
    - Special Dietary Foods and Food Specialty Preparation

12. Miscellaneous Categories
    - Motion Picture Cameras
    - Chemicals
    - Flags and Pennants
    - Hazardous Material Spill Containment and Clean-Up Equipment
    - Live Animals, Not Raised for Food
    - Signs, Advertising Displays, and Identification Plates
    - Video Recording and Reproducing Equipment
    - Recreational and Gymnastic Equipment

Additional Figures

Figure 12. Department of Defense Organizational Structure



Note: Acronyms from top to bottom, left to right: Defense Advanced Research Projects Agency; Defense Contract Management Agency; Defense Health Agency; Defense Intelligence Agency; Defense Logistics Agency; Defense Information Systems Agency; Defense Threat Reduction Agency; Missile Defense Agency; National Geospatial-Intelligence Agency; National Reconnaissance Office; National Security Agency; Air Combat Command; Air Education and Training Command; Air Force Material Command; U.S. Space Command; Space Training and Readiness Command; U.S. Army Forces Command; U.S. Army Training and Doctrine Command; Air Mobility Command; U.S. Marine Corps Forces Command; U.S. Marine Corps, Pacific; U.S. Pacific Fleet; U.S. Fleet Forces Command; Naval Sea Systems Command; U.S. Special Operations Command; U.S. Strategic Command; U.S. Cyber Command; U.S. Transportation Command; U.S. Africa Command; U.S. Central Command; U.S. European Command; U.S. Indo-Pacific Command; U.S. Northern Command; U.S. Southern Command; Graph by Eric Lin.
Source: Federal Procurement Data System

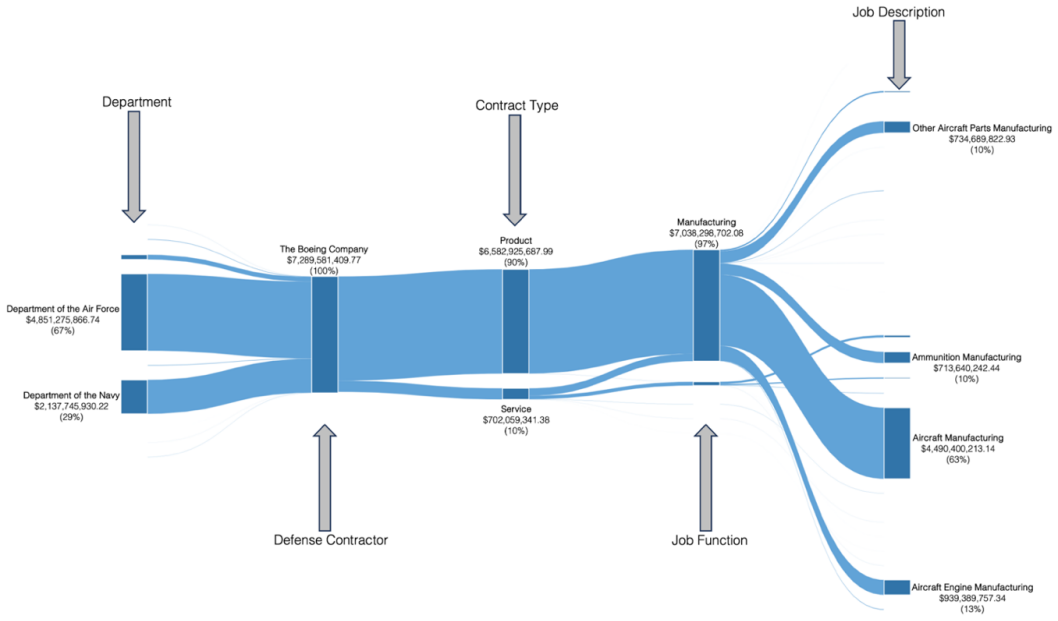
Figure 12. illustrates the organizational structure of the Department of Defense. At the top of this structure is the National Command Authority (NCA). In the United States, this refers to the president, the secretary of defense, and/or their duly deputized alternates or successors, representing the highest level of military decision-making. Directly beneath the NCA is the Department of Defense (DoD), the central body responsible for coordinating and supervising all agencies and functions related to national security and the military. The DoD itself is divided into three primary branches: the Military Department, the Unified Combatant Command, and the Military-Related Agencies.

The Military Department is further divided into three major sub-departments: the Department of the Air Force, the Department of the Army, and the Department of the Navy. Each of these sub-departments oversees specific branches of the U.S. military.

The Unified Combatant Command is another critical branch of the DoD, divided into Functional and Geographic Commands. Functional Commands, such as the U.S. Special Operations Command (SOCOM), U.S. Strategic Command (STRATCOM), U.S. Cyber Command (CYBERCOM), and U.S. Transportation Command (TRANSCOM), focus on specific operational areas across all regions. In contrast, Geographic Commands, including U.S. Africa Command (AFRICOM), U.S. Central Command (CENTCOM), U.S. European Command (EUCOM), U.S. Indo-Pacific Command (INDOPACOM), U.S. Northern Command (NORTHCOM), and U.S. Southern Command (SOUTHCOM), are responsible for military operations within specific geographic areas.

Finally, the Military-Related Agencies are specialized entities that support the broader DoD mission by providing essential services and capabilities. These agencies include the Defense Advanced Research Projects Agency (DARPA), Defense Contract Management Agency (DCMA), Defense Health Agency (DHA), Defense Intelligence Agency (DIA), Defense Logistics Agency (DLA), Defense Security Agency (DSA), Defense Threat Reduction Agency (DTRA), Missile Defense Agency (MDA), National Geospatial-Intelligence Agency (NGA), National Reconnaissance Office (NRO), and National Security Agency (NSA).

Figure 13. Flow of Money, The Boeing Company



Note: Graph by Eric Lin.
Source: Federal Procurement Data System

Figure 13. demonstrates a breakdown of the Boeing Company's contract awards by department, contract type, job function, and job description. In 2023, the majority of the contract awards came from the Department of the Air Force and 90% of the total contract awards from DoD flew into producing products. Looking at the job description, 63% of contract awards went to manufacturing aircraft, 13% went to manufacturing aircraft engines, 10% went to manufacturing other aircraft parts, and another 10% went to manufacturing ammunition. The remaining categories are suppressed due to their insignificance in the company's overall production scheme.

Endnotes

Introduction

1 George W. Grupp, “The Economic and Military Importance of Our Inland Waterways,” Proceedings, April, 1950, https://www.usni.org/magazines/proceedings/1950april/economic-and-military-importance-our-inland-waterways.

2 “Aerospace & Defense in Missouri,” Missouri Partnership, August, 2016, https://www.missouripartnership.com/wp-content/uploads/2016/08/Aerospace-and-Defense.pdf.

3 “Missouri is a Top Aerospace Manufacturer in North America,” Missouri Partnership https://www.missouripartnership.com/key-industries-2/aerospace-defense/.

4 “St. Louis County Approves $155 Million in Tax Breaks for Boeing,” Spectrum News, September 20, 2023, https://spectrumlocalnews.com/mo/st-louis/news/2023/09/20/boeing-tax-breaks.

Military-Industrial Economy

1 Aidan McNamee, “How the Aerospace Industry is Soaring to New Heights in the US Midwest,” August 23, 2023, https://www.airport-technology.com/sponsored/how-the-aerospace-industry-is-soaring-to-new-heights-in-the-us-midwest/.

2 Elizabeth Hoffman, Audrey Aldisert, Cynthia Cook, Gregory Sanders, and Shivani Vakharia, “How Supporting Ukraine is Revitalizing the U.S. Defense Industrial Base,” April 18, 2024, https://www.csis.org/analysis/how-supporting-ukraine-revitalizing-us-defense-industrial-base.

3 Aidan McNamee, “How the Aerospace Industry is Soaring to New Heights in the US Midwest,” August 23, 2023, https://www.airport-technology.com/sponsored/how-the-aerospace-industry-is-soaring-to-new-heights-in-the-us-midwest/.

4 “2023 National Defense Budget: More Money for Troops,” February 24, 2023, https://mymilitarybenefits.com/benefits/2023-national-defense-budget/.

5 “Gross Domestic Product by State,” Bureau of Economic Analysis, https://www.bea.gov/data/gdp/gdp-state.

6 “Quarterly Census of Employment and Wages (QCEW),” Missouri Economic Research and Information Center.

Military Infrastructure

1 “Map of Missouri Military Installations,” Office of Military Advocate, State of Missouri, https://military.ded.mo.gov/media/pdf/map-missouri-military-installations.

2 “Military and Civilian Personnel by Service/Agency by State/Country,” Defense Manpower Data Center, December 2023, https://dwp.dmdc.osd.mil/dwp/app/dod-data-reports/workforce-reports.

3 “Land Use Database,” The Center for Land Use Interpretation, https://clui.org/ludb.

4 “Waste-Related Sites and Regulated Facilities,” Missouri Department of Natural Resources, https://dnr.mo.gov/waste-recycling/sites-regulated-facilities.

5 “Land Use Database, Fort Leonard Wood, Missouri,” The Center for Land Use Interpretation, https://clui.org/ludb/site/fort-leonard-wood.

6 “2023 Army Winner,” The Assistant Secretary of Defense for Energy, Installations, and Environment,

https://www.acq.osd.mil/eie/Downloads/2023%20CinCAnnual%20Awards%20Winners_Installation%20Narratives.pdf.

7 Brian Hill, “Future USACE Leaders Get Taste of Army Life at Fort Leonard Wood,” U.S. Army, October 13, 2021, https://www.army.mil/article/251134/future_usace_leaders_get_taste_of_army_life_at_fort_leonard_wood.

8 “Search Government Contracts for Bid in Fort Leonard Wood (MO),” GovWin IQ, Deltek, https://iq.govwin.com/neo/public/pop/Fort%20Leonard%20Wood%20%28MO%29.

9 “Waste-Related Sites and Regulated Facilities, Whiteman Air Force Base,” Missouri Department of Natural Resources, https://dnr.mo.gov/waste-recycling/sites-regulated-facilities/federal/whiteman-air-force-base.

10 “Land Use Database, Whiteman Air Force Base,” The Center for Land Use Interpretation, https://clui.org/ludb/site/whiteman-air-force-base.

11 “FY23 Economic Impact Report,” Whiteman Air Force Base, https://www.whiteman.af.mil/Portals/53/documents/Economic%20Impact%20Statements/FY23%20Economic%20Impact%20Tri-Fold%20-%20FINAL.pdf?ver=Vs3Ox5zpMj73YIEBdzbaDw%3D%3D.

12 “139th Airlift Wing – Missouri Air National Guard, History,” 139th Airlift Wing, https://www.139aw.ang.af.mil/About-Us/History/.

13 “139th Airlift Wing Annual Report 2023,” 139th Airlift Wing, https://www.139aw.ang.af.mil/Portals/35/2023%20Annual%20Report%20Small%202.pdf.

Private Military-Related Industry

1 Federal Procurement Data System, https://www.fpds.gov/fpdsng_cms/index.php/en/.