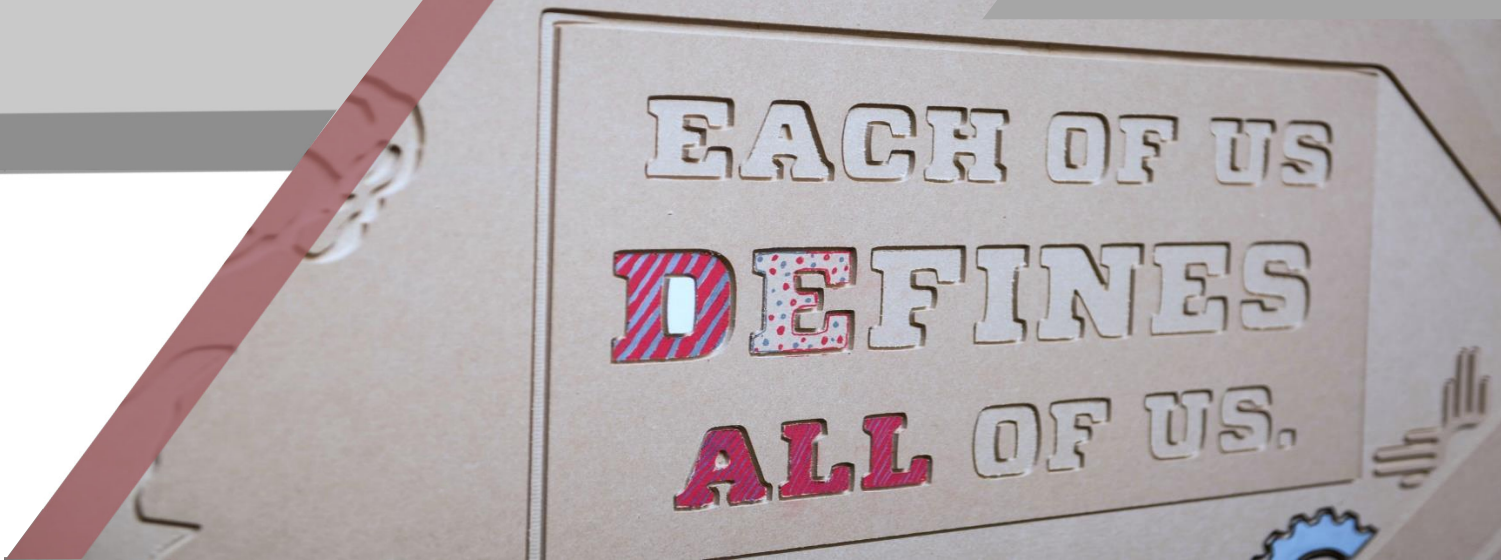# Economic Impact of Military Installations in New Mexico on the State

Prepared for the New Mexico Economic Development Department,
Office of Military Base Planning and Support

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JULY 2022

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Executive Summary

The Bureau of Business and Economic Research has been contracted by the Office of Military Base Planning and Support to evaluate the economic impact of military installations on the State of New Mexico. This report analyzes the economic impact of (1) Cannon Air Force Base including Melrose Air Force Range; (2) Holloman Air Force Base; (3) Kirtland Air Force Base; and (4) White Sands Missile Range. Furthermore, the present provides a brief review of veterans' statistics within the State, as well as regional employment in the states surrounding New Mexico (Arizona, Oklahoma, Texas, and Utah).

New Mexico houses a large veteran population, relative to non-veterans. U.S. Census data show that approximately 9 percent of the total adult population of the State are veterans. Alaska maintains the largest veteran-to-non-veteran percent, at 12 percent. A wide gap exists between veterans' and non-veterans' incomes, with veteran income sitting at approximately 164 percent that of the non-veteran population. The only state with a larger difference is Virginia (166%). Lastly, poverty rates among veterans in New Mexico is lower than that demonstrated in non-veterans. Non-veterans are 10 percent more likely to reside at or below the poverty threshold. Given these statistics, subsequent research into the economic impact of various programs to attract veterans into the State may be beneficial.

141,558 veterans reside in New Mexico, with 33% living in Bernalillo County. Another 39% are distributed amongst the counties of Doña Ana, Sandoval, Santa Fe, Otero, San Juan, and Valencia. Of all New Mexico veterans, 50% are aged sixty-five or above and 20% are in the age group between 55 and 64 years of age. Median veteran incomes in the state are largely in the $30,000 to $49,999 range, though the Counties of Catron, Harding, and McKinley record median incomes in the $20,000 range. Median incomes of veterans residing in Los Alamos County are just under $92,000.

According to Bureau of Economic Analysis industrial categorizations, the military is the 17th largest employer in New Mexico. The eighteen thousand active-duty jobs filled by this industry account for 8 percent of the total State jobs. That figure is larger than for the surrounding states, where military employment accounts for 7 percent in Arizona, Oklahoma, and Texas, and only 6 percent in Utah.

Total economic impacts, by installation are shown in Table 1. The total effect to the State is presented in the bottom-most row, as *Total.* Total impacts record 52,268 jobs, $2.8 billion in labor income, and more than $14 billion in industrial output. The 52,268 direct, indirect, and induced jobs generated by these installations is equal to roughly double that of mining, quarrying, and oil & gas jobs in the State during 2020.

Table 1. Economic Impacts by Military Installation, 2022 Dollars

	Employment	Labor Income	Output
Cannon AFB and Melrose MR	6,413	$400,544,064	$2,068,064,314
Holloman AFB	6,850	$420,917,441	$2,168,768,403
Kirtland AFB	30,126	$1,259,267,232	$6,197,831,869
White Sands MR	8,879	$726,391,044	$3,756,734,778
Total	**52,268**	**2,807,119,780**	**14,191,399,364**

Souce: IMPLAN; BBER

Cannon Air Force Base and Melrose Air Force Range directly employ 4,807 personnel. An additional 1,606 jobs are created through indirect and induced effects for a total employment impact of 6,413. Total labor income effects are equal to $400 million. Cannon AFB further supports the State economy through $2.1 billion in industrial output (15% of the total State output impact).

Holloman Air Force Base is the third-largest producer of jobs between the analyzed bases with a total employment impact of 6,850 jobs. Labor income impacts from this site total $421 million. Industrial output is estimated at $2.2 billion.

A direct injection of 22,667 jobs by Kirtland Air Force Base, generates a total of 30,126 jobs in the State, or 57 percent of the total effect generated by the bases, combined. Labor income and output totals created by this base account for 45 percent and 44 percent of the cumulative total, $1.3 billion and $6.2 billion, respectively.

Though White Sands Missile Range data was limited, utilizing only employment figures creates a generous employment impact. A direct effect of just over 6,023 active-duty military employees, contribute an additional 2,856 jobs through indirect and induced effects. Combined, the total employment effect attributed to this base is 8,879 positions—17 percent of the total State impact. Additionally, these employment figures contribute an estimated $726 million to statewide wages and $3.8 billion to State output.

Acknowledgements

Introduction

The Office of Military Base Planning and Support (OMBPS) is an entity administratively attached to the New Mexico Economic Development Department. It serves as the liaison between the State of New Mexico and the federal government to ensure a relationship between the Department of Defense and the State. The OMBPS maintains a mission to inform the NM governor and lieutenant governor regarding the State's military installations, to collaborate closely with the community to ensure that State initiatives run parallel to community actions, and to identify issues contributing to the sustainability of the State's installations[1].

In mid-2020, the Bureau of Business and Economic Research at the University of New Mexico (BBER) was commissioned by OMBPS to evaluate the economic impact of the military bases within the State. The present report estimates contributions to New Mexico in terms of employment, labor income, and industrial output of the following installations and excludes the impact of any associated laboratories: Cannon Air Force Base, including Melrose Air Force Range; Holloman Air Force Base; Kirtland Air Force Base; and White Sands Missile Range. Data constraints do not allow for analysis of the impact of Fort Wingate. Installation locations are positioned in Figure 1 below:
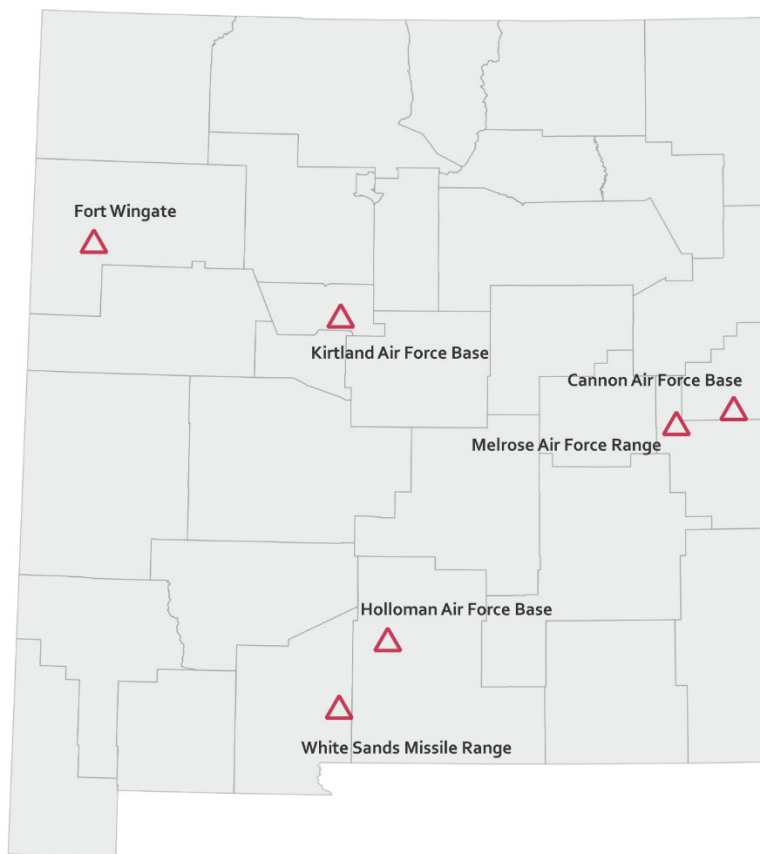
Figure 1. Military Bases in New Mexico

Cannon Air Force Base and Melrose Air Force Range[2]

Cannon Air Force Base (Cannon AFB) is in Eastern New Mexico, near the City of Clovis. Altogether, the base sits on almost four thousand acres of land. Cannon AFB is named after General Kenneth Cannon. It houses the 27th Special Operations Wing.

This analysis estimates the impact of Cannon AFB along with Melrose Air Force Range (Melrose AFR), which is located about thirty miles to the southwest of Cannon. Melrose AFR serves as a training site, including that for air-to-ground, small arms, and electronic combat. Melrose AFR covers an estimated seventy thousand acres while operations at the site claim an additional 2,500 square miles of airspace.

Holloman Air Force Base[3]

Located about eight miles to the southwest of Alamogordo, Holloman Air Force Base (Holloman AFB) houses the world's longest and fastest test track—a world record speed for railed vehicles was recorded at this site, at 6,453 mph. Holloman AFB lies on approximately sixty thousand acres of land and supports about 21,000 active-duty, guard, reserve, retirees, Department of Defense civilians, and members of their family.

Kirtland Air Force Base[4]

Kirtland Air Force Base (Kirtland AFB) occupies more than 50,000 acres just to the southeast of Albuquerque. The site houses operations in research, development & testing, readiness & training, munitions maintenance, and other support operations. Kirtland AFB is the largest of the air force bases in the State, employing about twenty-three thousand personnel, including uniformed military, civilians, and contract workers. An additional 20,000 military retirees living in the central New Mexico area are also supported by Kirtland AFB.

White Sand Missile Range & Fort Wingate[5]

White Sand Missile Range (White Sands MR) is the only Army base in New Mexico. It is also the largest fully instrumented open-air range under control of the Department of Defense. It is located on approximately 2.2 million acres of land to the northeast of Las Cruces, extending about one hundred miles north from the Organ Mountains to Highway 380. Fort Wingate is in northwestern New Mexico, about twelve miles east of Gallup.

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[2] Cannon Air Force Base: Who We Are. https://www.cannon.af.mil/About/
[3] Holloman Air Force Base Data. https://www.holloman.af.mil/About/Fact-Sheets/Display/Article/317268/holloman-air-force-base-data/
[4] Kirtland Air Force Base and the 377th Air Base Wing. https://www.kirtland.af.mil/About-Us/Fact-Sheets/Display/Article/825944/kirtland-air-force-base-and-the-377th-air-base-wing/
[5] White Sands Missile Range: More than Missiles. Fact Sheet. https://www.nasa.gov/pdf/449089main_White_Sands_Missile_Range_Fact_Sheet.pdf

Data

Though the aim of this report is to estimate the economic impact of the military installation in the State, it is important to consider the potential contributions of veterans residing in New Mexico. Furthermore, the industrial profile of states surrounding New Mexico are considered in this section, including employment data for Arizona, Oklahoma, Texas, and Utah, in addition to that from New Mexico. Installation data are discussed last.

Veterans Profile

This subsection reviews population, income, and poverty statistics for each state plus the District of Columbia. Figures are color-coded with series maxima in yellow, minima in green, and averages in orange. New Mexico data are presented in red in all figures.

Population

Per U.S. Census 5-Year estimates[6], New Mexico is home to more than 141 thousand veterans and boasts the twelfth largest veteran-to-total adult population ratio in the continental United States—8.8 percent of adults in New Mexico are veterans. Only Alaska, Virginia, Montana, Wyoming, Maine, South Carolina, Hawaii, Oklahoma, Washington, Arizona, and Idaho maintain a larger density of veterans. The average U.S. state records a veteran-to-total adult percentage of 7.8.

Figure 2 shows these percentages for each state and the District of Columbia. Alaska (in yellow) maintains the largest ratio, at 12.1 percent, while New York (green) is home to the smallest percent (only 4.4%). The average veteran-to-total population ratio is 7.7 percent, depicted below by the State of Maryland (orange). New Mexico, in red, is located well-left of center.

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[6] U.S. Census. American Community Survey: 5-Year Estimates, 2020
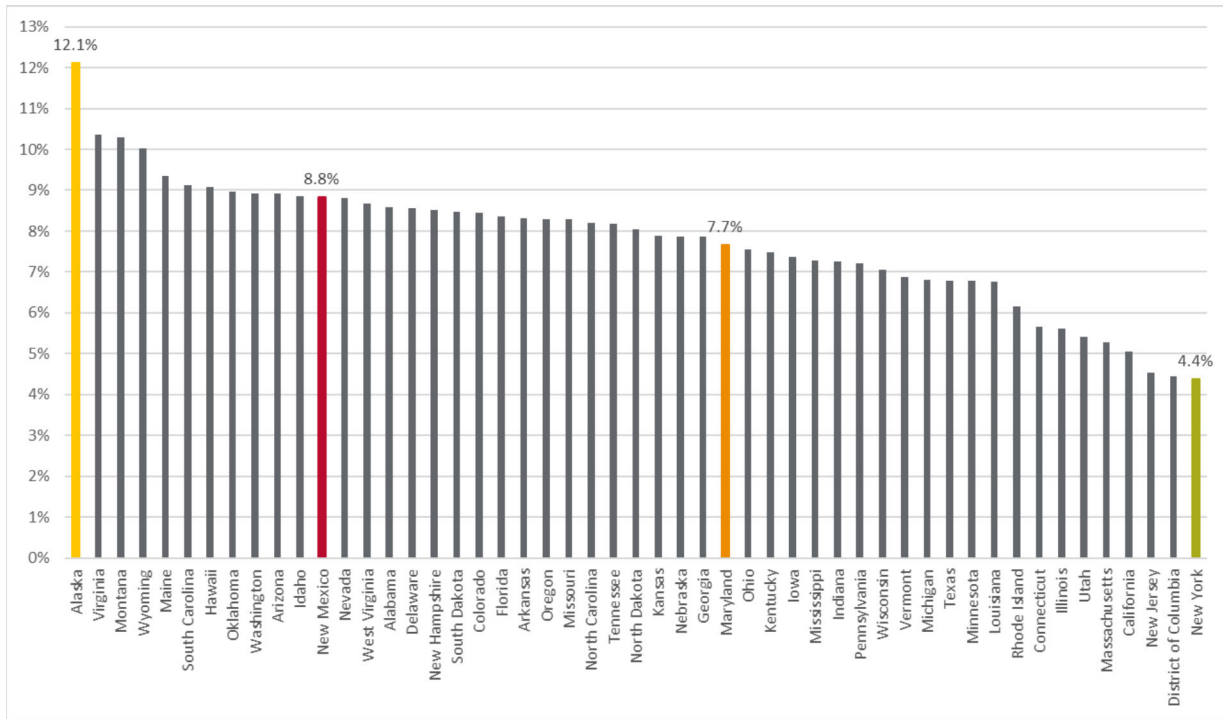
Figure 2. Percent Veterans of Total Adult Population, by State and District of Columbia

Income

Veterans' incomes are larger than those of non-veteran adults in every continental U.S. state as well as in the District of Columbia[7]. New Mexico veterans earn substantially more than non-veterans; only Virginia records larger veterans' income relative to that of non-veterans. These figures, by state, are illustrated in Figure 3 as a percent of non-veterans' income.

Census data suggest that veterans residing in New Mexico earn incomes 164 percent greater than those earned by non-veterans, or $164 for every $100 earned by non-veterans. Virginia leads New Mexico by two percentage points (166 percent). The smallest earning difference between veterans and non-veterans is observed in the District of Columbia, where veterans are expected to earn 111 percent that which non-veterans earn.

In all, average earnings by state, differ by 136 percent. Both Wyoming and Arizona maintain this income difference. They are shown in orange in Figure 3.

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[7] U.S. Census. American Community Survey: 5-Year Estimates, 2020
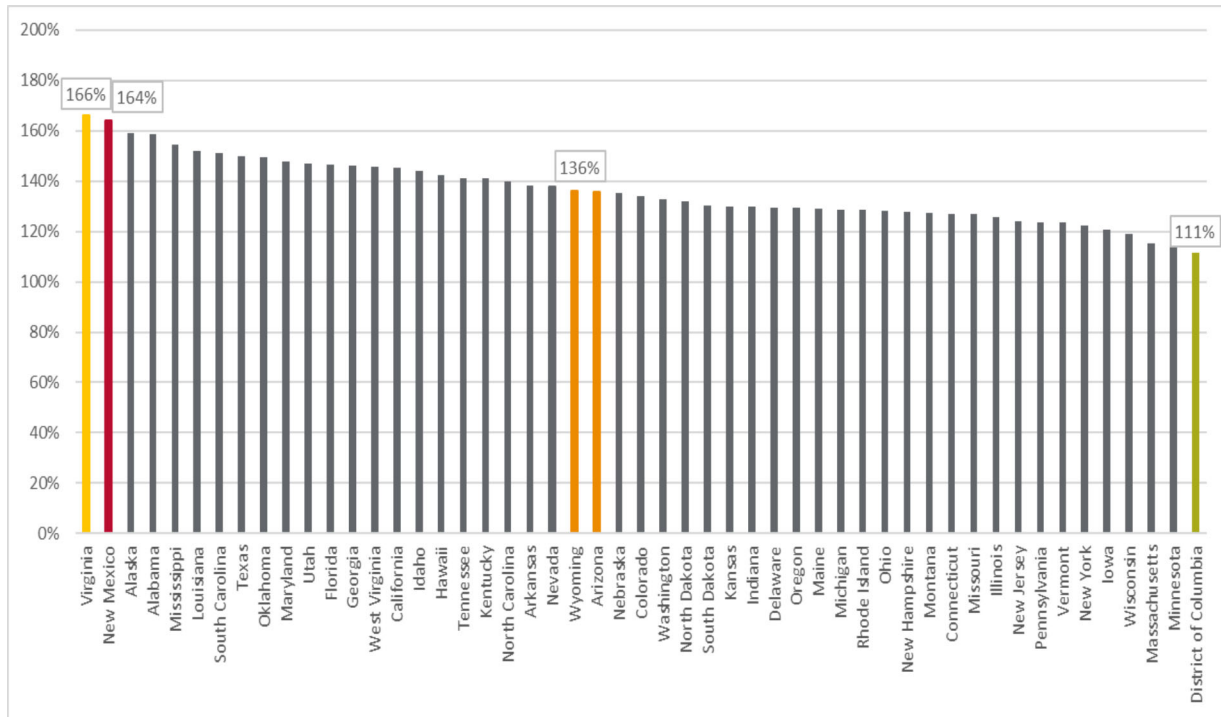
Figure 3. Veteran Income as a Percent of Non-Veteran Income by State

Poverty

Poverty thresholds vary by household size[8]. Per U.S. Census standards, a single-person household (aged under 65) is living in poverty if the household earns less than $13,171 annually. A household of nine of more persons lives in poverty if the home earns less than $50,035. In general, data suggests that veterans residing in the continental United States and District of Columbia demonstrate poverty rates smaller than that for non-veteran populations.

Figure 4 shows these data.[9] As the state housing the largest veteran population relative to total population, Alaska also records the largest percent of veterans living in poverty, relative to non-veterans. Non-veterans are 13.8 percent more likely to reside under the poverty threshold than veterans. New Mexico is twelfth in the series. The 9.8 percent value indicates that non-veterans in New Mexico are 9.8 percent more likely to qualify as residing in poverty than non-veterans. New York shows the smallest percent at 4.6. The average ratio of veteran-to-non-veteran poverty rates is 8.5 percent. The states closest to that average are Nebraska (8.6%), Kansas (8.6%), and Maryland (8.4%).

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[8] U.S. Census Poverty Thresholds for 2020 by Size of Family and Number of Related Children Under 18 Years
[9] U.S. Census. American Community Survey: 5-Year Estimates, 2020
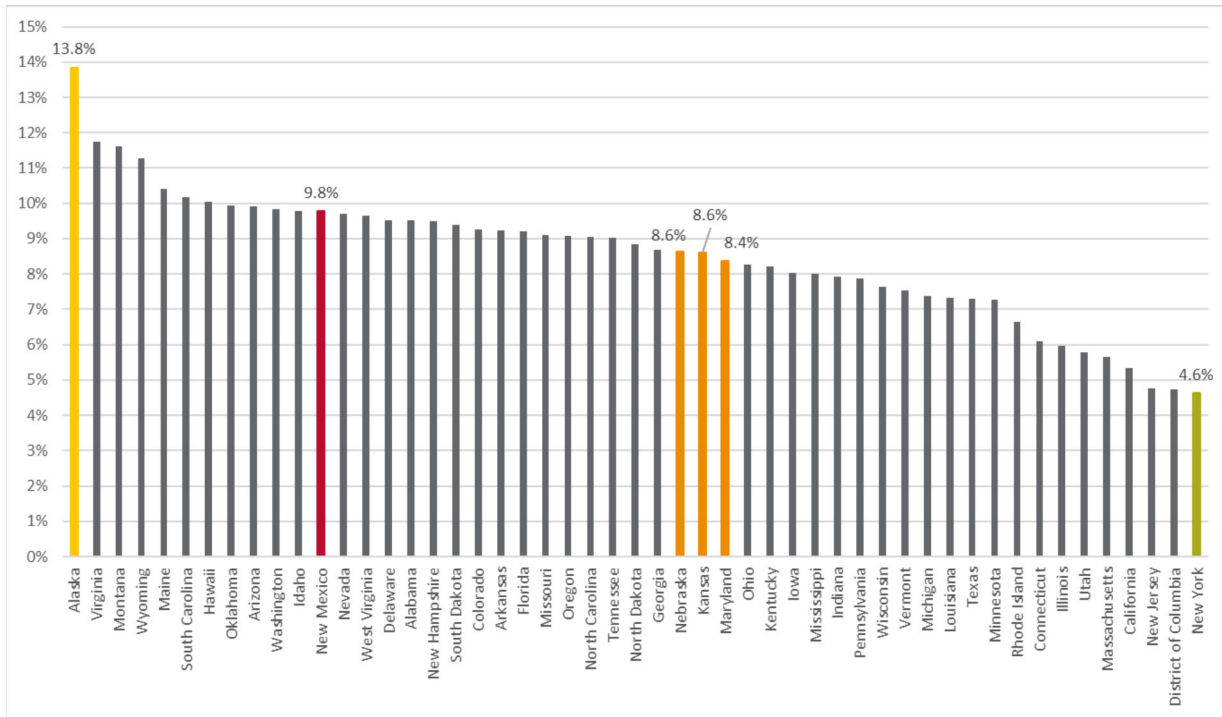
Figure 4. Non-Veteran Poverty as a Percent of Veteran and Non-Veteran Totals

Veterans in New Mexico Counties

Totals

Per U.S. Census 5-year American Community Survey estimates, New Mexico is home to 141,558 veterans. Approximately 47,000 (33%) reside inside Bernalillo County. Another 13,700 (10%) reside in Doña Ana County—the second-most populous county in the state. Almost 10,700 (8%) veterans claim Sandoval County as their home, while another 9,254, or 7% of New Mexico veterans live in Santa Fe County. Another 6% of state veterans claim Otero County as their home (7,835, total). San Juan and Valencia Counties house about 7,000 and 6,500 veterans, respectively—both at 5% of total state figures.

Remaining New Mexico veterans reside in populations of 5% or less in the other New Mexico counties. The County of Harding records the smallest population, 0.02%, or thirty-four, of the veteran total. Figure 5 shows these figures, per New Mexico County. Increasing red hues indicate a larger veteran population.
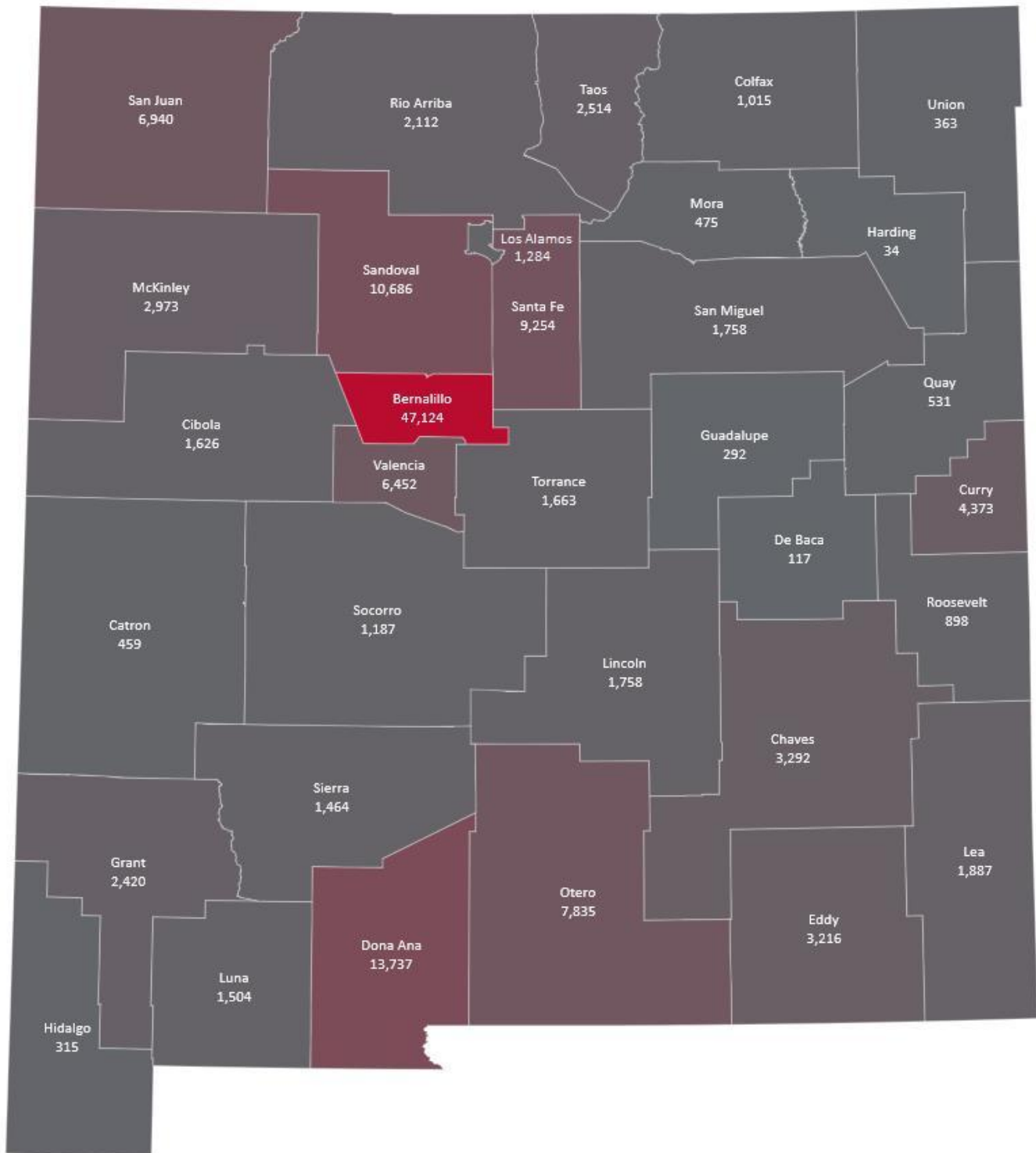
Figure 5. Total Veterans in New Mexico, by County[10]

Curry and Roosevelt Counties (housing Cannon AFB and Melrose MR) maintain veteran populations of 4,373 and 898, or 9% of the total veteran and non-veteran populations in Curry (48,400) and 5% of that in Roosevelt

[10] U.S. Census, American Community Survey, 5-year Estimates, 2020

(19,000). Holloman AFB is located in Otero County, which also contains a section of White Sands MR. Otero records a total population of almost 68,000. Veterans account for 12%, or 7,835 of the county totals.

Bernalillo County is home to Kirtland AFB. It is the most populous county in the state and is also the home to the largest in-state veteran population. The roughly 47,000 veterans in Bernalillo County account for 7% of the 674,000 persons residing in the county. White Sands MR spans the Counties of Doña Ana, Otero, Sierra, Lincoln, and Socorro. Doña Ana County is the second-most populated by veterans. The 13,737 veterans residing here make up 6% of the population total (219,561).

Sierra, Lincoln, and Socorro Counties house approximately 1,500, 1,800, and 1,200 veterans. In Sierra, that accounts for 13% of the county population. That figure is 9% and 7% in the Counties of Lincoln and Socorro. McKinley County, where Fort Wingate is located records a population of almost 3,000 veterans—4% of the 73,000 persons living in the county.

Age

Table 2 demonstrates veterans' data, by age. Figures in red boldface indicate the maxima of the row. Twenty-one of the thirty-three New Mexico counties house veteran populations where at least half are sixty-five years of age or older. Counties with retirement-age numbers under 50% of the veteran total are Bernalillo, Curry, Doña Ana, Guadalupe, Lea, Los Alamos, McKinley, Otero, Roosevelt, and Torrance.

Veterans are most numerous in the 65+ age group in all counties other than Curry or Guadalupe. In Curry County, the largest veteran age group sits between eighteen and thirty-four years. The largest age group is fifty-five to sixty-four years in Guadalupe County.

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Table 2. Total Veterans in New Mexico Counties, by Age

	Total Veterans	Percent Aged 65+	65+	55 to 64	35 to 54	18 to 34
Bernalillo	47,124	49%	22,934	9,128	11,332	3,730
Catron	459	63%	291	62	102	4
Chaves	3,292	54%	1,779	745	541	227
Cibola	1,626	56%	918	166	442	100
Colfax	1,015	59%	600	221	189	5
Curry	4,373	27%	1,177	847	1,107	1,242
De Baca	117	50%	59	1	57	0
Doña Ana	13,737	44%	6,099	2,942	3,090	1,606
Eddy	3,216	50%	1,608	501	1,044	63
Grant	2,420	68%	1,656	488	261	15
Guadalupe	292	28%	82	115	95	0
Harding	34	50%	17	4	5	8
Hidalgo	315	60%	190	53	72	0
Lea	1,887	45%	856	384	456	191
Lincoln	1,758	63%	1,099	286	326	47
Los Alamos	1,284	36%	460	391	348	85
Luna	1,504	68%	1,026	265	146	67
McKinley	2,973	40%	1,202	579	827	365
Mora	475	60%	283	123	69	0
Otero	7,835	41%	3,187	1,639	1,774	1,235
Quay	531	62%	327	119	46	39
Rio Arriba	2,112	67%	1,407	292	397	16
Roosevelt	898	31%	282	160	252	204
San Juan	6,940	50%	3,488	1,338	1,512	602
San Miguel	1,758	55%	964	521	238	35
Sandoval	10,686	50%	5,363	1,980	2,646	697
Santa Fe	9,254	61%	5,682	1,723	1,519	330
Sierra	1,464	77%	1,134	171	159	0
Socorro	1,187	67%	799	213	133	42
Taos	2,514	56%	1,405	458	597	54
Torrance	1,663	43%	721	404	507	31
Union	363	51%	186	131	46	0
Valencia	6,452	59%	3,782	1,216	1,036	418
Total	**141,558**		**71,063**	**27,666**	**31,371**	**11,458**

Source: U.S. Census, ACS 5-year Estimates

Bernalillo County records the largest count of retirement-age veteran in the state, 16% of the entire veteran population. The almost 23,000 65+ aged veterans residing in Bernalillo account for 49% of the veteran total in the county. Doña Ana, Santa Fe, and Sandoval Counties also maintain large populations, at 6,099, 5,682, and 5,363, respectively. In Doña Ana County, veterans of retirement age account for 4% of all veterans in the state

and 44% of those in the county. In Santa Fe and Sandoval Counties, 61% and 50% of county veterans are in this age group.

Valencia County is home to 3,800 retirement-age veterans. San Juan County follows with 3,500 veterans in that age category. Otero County records 3,200 veterans aged 65+. Sierra County houses a total of 1,464 veterans; 1,134 of those are of retirement age. As such Sierra County maintains the largest percent of retirement-age veterans, relative to total veterans. The county with the smallest ratio is Curry County, with only 27% of the county total being aged 65+.The county map in Figure 6 shows the distribution of retirement-age veterans in the state. Again, a redder hue indicates a larger concentration. On average, 2,153 veterans of retirement age reside in every New Mexico county, though the numbers range from seventeen in Harding to almost 23,000 in Bernalillo.
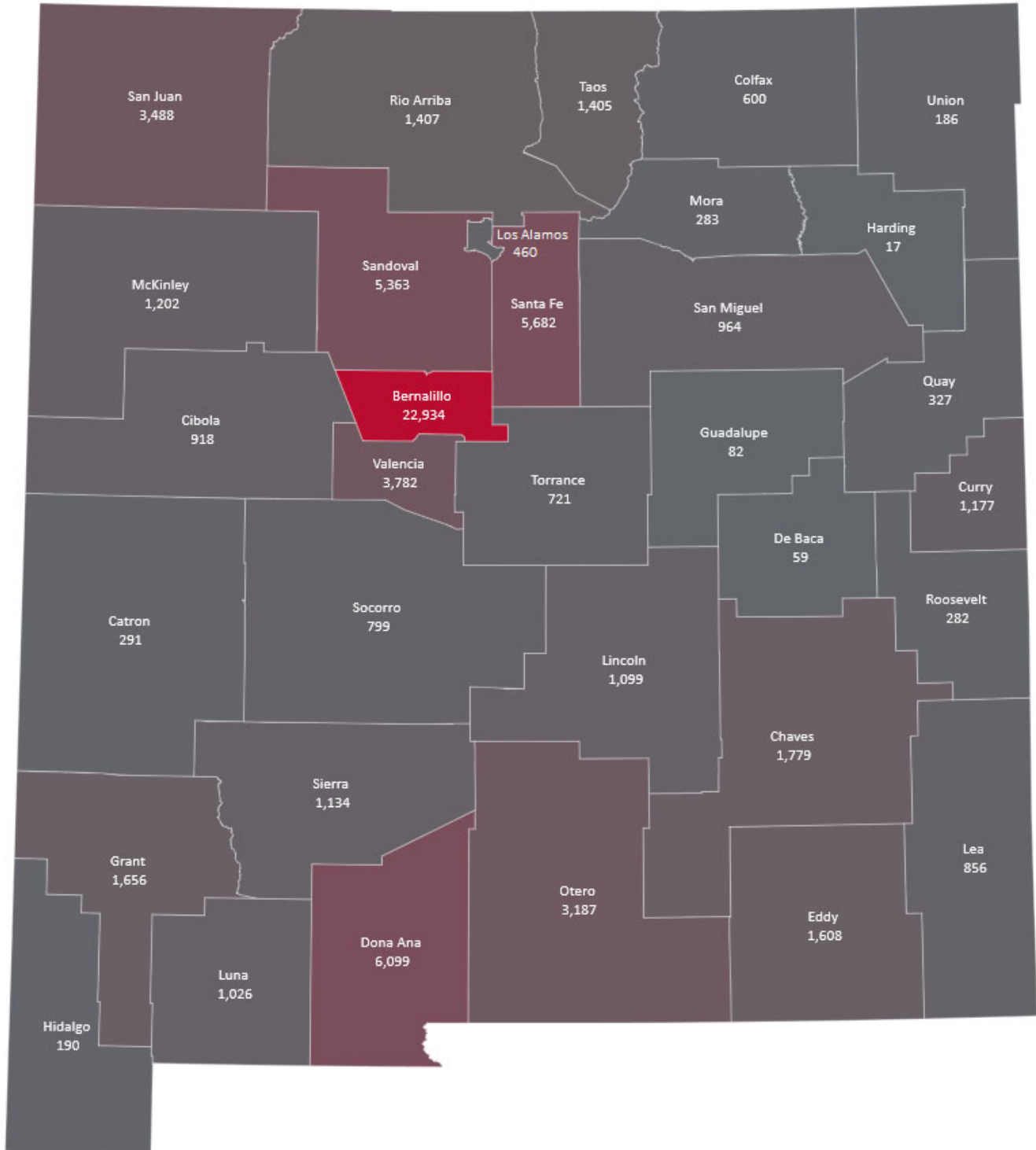
Figure 6. Veterans of Retirement Age in New Mexico, by County[11]

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[11] U.S. Census, American Community Survey, 5-year Estimates, 2020

Income and Poverty

Table 3 describes median income and poverty status for veterans in each New Mexico county. The largest median income among veterans is in Los Alamos County—almost $92,000. Harding County demonstrates the smallest median incomes, at $20,600. Data shows that the veterans in sixteen counties in the state maintain median incomes between $30,000 and $39,999. Eleven counties show median incomes between $40,000 and $49,999. The veterans of three counties (Catron, Harding, and McKinley) report incomes in the $20,000 range. Median incomes for veterans residing in Sandoval County are at $52,600. Data are missing for incomes in De Baca County.

Poverty levels are estimated by the U.S. Census on population figures which are slightly different that actual totals. The third column in Table 3 shows these as an estimation of veterans living below the poverty level in each county. Bernalillo County demonstrates the largest total of veterans living with incomes under the poverty level—equal to 7% of all veterans in that county. Doña Ana is the county with the second largest count of veterans living with incomes falling below poverty thresholds (roughly 9% of Doña Ana veterans).

Percentages of poverty-stricken veterans at or greater than 10% are noted for the counties of De Baca (27%), McKinley (20%), Luna (13%), Roosevelt (13%), Torrance (13%), Cibola (12%), Sierra (12%), Chaves (11%), Rio Arriba (11%), and Taos (11%). Eight counties record veteran poverty levels at or under 5%. The smallest total of poverty figures are seen in Guadalupe County, with zero veterans living under the threshold. The other counties are Los Alamos (1%), Curry (3%), Lea (3%), Catron (4%), Lincoln (4%), Colfax (5%), and Sandoval (5%).

Table 3. Median Incomes and Poverty Levels Among New Mexico Veterans, by County, 2020 dollars

	Median Income	Income below Poverty Level	Percent with Income below Poverty Level
Bernalillo	$44,785	3,446	7.4%
Catron	$26,929	18	3.9%
Chaves	$33,674	348	10.7%
Cibola	$37,500	192	12.3%
Colfax	$41,222	45	4.6%
Curry	$39,391	126	2.9%
De Baca	no data	31	26.5%
Doña Ana	$44,065	1,208	8.9%
Eddy	$45,708	264	8.3%
Grant	$31,827	231	9.8%
Guadalupe	$43,272	0	0.0%
Harding	$20,625	3	8.8%
Hidalgo	$35,855	28	8.9%
Lea	$49,734	55	3.0%
Lincoln	$32,618	63	3.6%
Los Alamos	$91,983	13	1.0%
Luna	$32,717	195	13.2%
McKinley	$24,525	576	19.7%
Mora	$31,222	32	6.7%
Otero	$42,988	674	8.8%
Quay	$40,078	49	9.4%
Rio Arriba	$35,022	231	11.0%
Roosevelt	$37,702	114	12.9%
San Juan	$40,919	557	8.1%
San Miguel	$34,956	90	5.3%
Sandoval	$52,646	518	4.9%
Santa Fe	$44,886	641	7.0%
Sierra	$30,182	171	12.4%
Socorro	$35,083	102	8.7%
Taos	$34,367	267	10.8%
Torrance	$30,636	213	12.9%
Union	$30,703	31	9.7%
Valencia	$40,174	520	8.2%

Source: U.S. Census, ACS 5-year Estimates

Regional Employment

Table 4 lists employment numbers by NAICS industry for 2020, as recorded by the Bureau of Business Analysis, for New Mexico and its surrounding states. New Mexico maintains a military employment of just over eighteen thousand. Arizona and Oklahoma show a total of thirty-five thousand and almost thirty-six thousand, respectively. Texas, by far, sees the largest numbers in military employment, at more than 173 thousand jobs—more than nine times that recorded in New Mexico. Of the five states, Utah records the smallest military employment, at just under seventeen thousand individuals.

Despite demonstrating the largest total military presence, by employment, Texas military employment accounts for only 7 percent of the almost seventeen million in total Texas employment. Likewise, military employment in Arizona and Oklahoma explains only 7 percent of each states' total. Utah military totals account for 6 percent. New Mexico sees a slightly larger percentage of military employment, relative to total employment in the State. The 8 percent figure is particularly impressive given that New Mexico maintains total employment figures equal to less than half of those seen in Arizona, Oklahoma, and Utah. Furthermore, total employment in New Mexico (roughly one million) is much smaller than that of Texas (just under seventeen million).

Table 4. 2020 Non-Farm Employment, by Industry, in New Mexico and Surrounding States

	New Mexico	Arizona	Oklahoma	Texas	Utah
Military	18,074	35,315	35,914	173,144	16,784
Accommodation & Food Services	78,018	261,839	153,935	1,184,267	121,770
Administrative & Waste Services	54,993	305,459	131,294	1,151,430	114,885
Agriculture, Forestry, Fishing & Hunting	5,618	14,402	9,595	63,287	4,299
Arts, Entertainment, & Recreation	19,415	68,846	30,848	246,763	40,024
Construction	65,623	234,931	129,349	1,192,678	144,764
Educational Services	16,168	82,286	30,142	290,344	71,356
Federal Government (Civilian)	30,187	58,978	51,081	215,186	39,375
Finance & Insurance	35,822	264,810	103,737	1,078,669	138,597
Healthcare & Social Assistance	134,208	449,285	220,416	1,707,588	178,534
Information	11,819	56,323	23,437	246,908	43,646
Management of Companies & Enterprises	6,458	40,823	24,363	206,628	31,623
Manufacturing	32,764	190,143	139,945	943,627	145,477
Mining, Quarrying, Oil & Gas	25,659	17,746	75,472	327,573	11,542
Other Services & Unclassified	51,430	190,908	122,819	968,533	101,384
Professional & Technical Services	83,829	257,300	115,892	1,259,157	169,367
Real Estate, Rental & leasing	39,031	212,815	84,634	760,676	114,435
Retail Trade	104,321	385,790	220,910	1,588,251	211,052
State and Local Government	153,403	356,541	282,549	1,693,748	209,037
Transportation & Warehousing	31,282	187,358	87,459	882,829	86,115
Utilities	4,443	12,640	9,892	57,537	4,919
Wholesale Trade	23,765	111,314	60,418	644,513	59,796
Total	**1,026,330**	**3,795,852**	**2,144,101**	**16,883,336**	**2,058,781**
Percent Military-to-Total Employment	8%	7%	7%	7%	6%
Military Employment Rank	17	19	16	20	19

Source: Bureau of Economic Analysis

By industry, the military is the 17th largest employer in New Mexico. The largest employers in the State are State and Local government, cumulative, with a total of 153,403 jobs. The smallest employment industry in the State is utilities, with only 4,443 jobs. In Arizona and Utah, military employment is ranked at 19. The largest

employment industry in Arizona is Healthcare and Social Assistance; the smallest employment number is also found in utilities. In Utah, Retail Trade boasts the largest employment totals. Agriculture, Forestry, Fishing, and Hunting is the smallest employment industry. In Oklahoma, military it ranks as the 16th largest employer. Like New Mexico, State and Local Government together maintain the largest employment numbers in Oklahoma; Agriculture, Forestry, Fishing, and Hunting is the smallest employment class. In Texas, military employment is the 20th-largest source of employment. Healthcare and Social Assistance is the largest source of Texas jobs while utilities provide the smallest contribution to the total.

Installation Data

Below are figures provided by military base personnel (Table 5). The COVID-19 public health crisis affected administrative efforts at each base. As such, this report utilizes whatever data was available, namely, data from the most recent fiscal year. Data from Canon Air Force Base, Kirtland Air Force Base, and White Sands Missile Range are from fiscal year 2020 while figures for Holloman Air Force Base data describe activity from fiscal year 2019.

In the data presented, Cannon and Melrose bases report a total employee base of 4,807 and $328 million in payrolls. In-state operations expenditures total $2.36 million. An additional $2 million were spent to complete on-site capital improvement projects throughout fiscal year 2020. Not included in the table are out-of-state expenditures, which total just over $490 thousand and account for various maintenance and repair expenses.

Table 5. Military Installation Expenditures, 2020 Dollars

	Cannon AFB & Melrose MR	Holloman AFB	Kirtland AFB	White Sands MR
Employment	4,807	5,102	22,667	6,023
Payrolls	$327,776,816	$336,799,953	$893,269,707	$604,977,176*
Operations	$2,360,000	$7,082,551	$842,867,055	-
Capital Expenditures	$2,000,000	$10,384,659	$31,952,603	-

Source: Personnel from Cannon Air Force Base, Holloman Air Force Base, Kirtland Air Force Base, and White Sands Missile Range.
*White Sands MR payroll totals are IMPLAN estimations.

Holloman Air Force Base logs an employment total of 5,102. Total payrolls were $335 million during fiscal year 2019—amounting to $337 2020 real dollars. Holloman AFB records around $7 million in operational expenses, purchased in-state during the fiscal year ($7.08 million with inflation to 2020). In-state spending for capital expenditures totals $10.3 million ($10.4 million 2020 dollars).

Of persons employed at Holloman AFB, 4,472 are employed as active-duty personnel, 472 are employed as appropriated fund civilians, and an additional, 158 as non-appropriated fund civilians. Regarding payrolls (in 2020 dollars), $269 million are assigned to military personnel, $29 million to appropriated civilians, and $38 million to non-appropriated civilians.

Kirtland AFB maintains the largest workforce of the four installations, with an employment total of 22,667 individuals. At this location, wages and salaries sum to almost $900 million during fiscal year2020. In-state operational expenditures during the fiscal year amount to just under $843 million and include service contracts

as well as spending for materials, equipment, and supplies. Construction spending is reported at $32 million during the same fiscal year.

Of persons employed at Kirtland AFB, only about 20% are active duty—split between Air Force (3,443), Army/NAVY/Marine/Coast Guard (62), and Air Force Guard Reserve (1,028). Appropriated fund civilian employment was 17,723 during fiscal year 2020. 411 non-appropriated civilians are also employed at KAFB. $365 million of the payroll total were assigned to military personnel during the 2020 fiscal year, while $516 million were apportioned to appropriated civilians and $11.5 million were paid to non-appropriated civilians.

Data from White Sands Missile Range is limited. Though employment numbers were available, payrolls were not. The $605 million reported in the table reflect estimations produced by IMPLAN, as projected for an employee population of 6,023. Data for operational spending, nor capital expenditures, were available. Furthermore, employment numbers reflect only military personnel at White Sands Missile Range; contractor data are unavailable.

Methodology

The input-output modeling system, IMPLAN, is employed in this analysis. IMPLAN was introduced in 1972 as a tool for the U.S. Forest Service, but soon grew into a wider audience including academics, governments, developers, and consultants; the model has since become a leader in economic impact data and analytical applications. Academically, IMPLAN has informed researchers in institutions like Cornell University, Michigan State University, and the University of Illinois. Additionally, this methodology has been used to evaluate government programs by organizations including the U.S. Department of the Treasury and the U.S. Geological Survey.[12]

IMPLAN models the impact of economic activity on an established region[13]. This effect is generally larger than the sum of an entity's spending on that region's economy. In the present, wages and salaries paid directly to installation employees will be spent by these individuals for the purchase of goods and services. Furthermore, in-state expenditures undertaken by each base to support operations and construction will stimulate production from local vendors who supply these installations with necessary intermediate goods. This bump in demand encourages vendors to hire persons for their own firms and to purchase goods and services themselves. Like base employees, employees from these firms will also spend a portion of their earnings on goods and services.

Direct impacts are the changes to production or expenditures made directly by the installations. In this report, direct effects are those described in the previous section, under *Base Data*. These are base employment figures and spending for operations and construction.

A second type of effect, the indirect effect, is that which results from purchases made by the bases from other businesses in the State. These impacts exist due to expenditures by businesses and organizations supporting base operations. These expenditures create demand for goods and services produced by other companies. Those organizations must then purchase goods and services and hire employees to produce their products.

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[12] See IMPLAN.com for more information.
[13] See Appendix for a review of the IMPLAN process.

The third type of impacts are deemed induced. Induced effects record changes to the economy triggered by employee spending (these effects include spending from installation employees, and those employed by the vendors supporting them). Induced impacts stem from day-to-day expenditures, such as buying groceries, housing, transportation, health care services, entertainment, etc. Employee spending creates further demand for goods and services. Local firms must then purchase supplies and hire employees to meet that demand.

The total effect is the sum of direct, indirect, and induced effects. It is the increase to employment, labor income, and output, compared to direct injections of the same. The growth in direct impacts is known as a multiplier. Multipliers are estimated as the quotient of the total effect and direct effect. These provide a measure of economic activity generated per dollar or per employee.

Though the most recent datasets released by IMPLAN are from 2020, this report uses 2019 trends to avoid the uncharacteristic fluctuations in the economy recorded in 2020 caused by the COVID-19 pandemic. Direct effects are determined through direct inputs for employment and labor income. Direct output is estimated by IMPLAN, based on the employment and income entries for the military industrial cluster in New Mexico. Indirect and induced effects are estimations, also generated by IMPLAN, based on historical institutional spending patterns of the New Mexico military industry. Indirect and induced effects also include the effect of spending for non-residential buildings.

Effects are estimated for each base before the assessing cumulative effect of the military installations on the State of New Mexico. The total effect is achieved by summing the individual impacts derived for each base. The following section reviews these results.

Economic Impact

This section examines the economic impact of military installations in New Mexico. Each subsection describes the effect on the State of New Mexico; first, by individual base, followed by the total impact on the State. Cannon AFB (and Melrose AFR) is considered first, followed by Holloman AFB and Kirtland AFB. White Sands MR is discussed last.

Cannon Air Force Base and Melrose Air Force Range

Impacts to the State of New Mexico by Cannon AFB and Melrose AFR throughout fiscal year 2020 are shown in Table 6. The bases, together, employed 4,807 persons during the period of analysis, maintaining a labor income of $332 million. These figures contribute to an estimated $1.8 billion in direct industrial output to the State of New Mexico.

Operations at Cannon AFB and Melrose AFR further support the State, indirectly, through the generation of 1,606 jobs, an additional $69 million in labor income, and $244 million in output. Together, direct, indirect, and induced effects sum to 6,413 jobs, more than $400 million in wages and salaries, and a total industrial output that exceeds $2 billion.

Table 6. Economic Impact of Cannon Air Force Base and Melrose Air Force Range on the State of New Mexico, 2022 Dollars

	Employment	Labor Income	Output
Direct	4,807	$331,937,502	$1,824,388,131
Indirect & Induced	1,606	$68,606,562	$243,676,183
Total	**6,413**	**$400,544,064**	**$2,068,064,314**
Multiplier	1.33	1.21	1.13

Souce: IMPLAN; BBER

Multipliers are 1.33 for employment, 1.21 for labor income, and 1.13 for output. These numbers suggest that 1.33 jobs are created in the New Mexico economy for every direct job at these bases. The labor income multiplier indicates that every additional dollar in salaries and wages at Cannon AFB and Melrose AFR produces $1.21 in labor income for the State, or a premium of $0.21 for every dollar. Likewise, every dollar in output generated contributes $1.13 in New Mexico industrial output.

Holloman Air Force Base

The impact of Holloman AFB on the State of New Mexico in Fiscal Year 2019 is displayed in Table 7. 5,102 individuals were directly employed at the base during the fiscal year, receiving more than $345 million in salaries and wages. Those numbers translate to almost $2 billion in industrial output for the State of New Mexico alone.

Activities at Holloman Air Force Base further supported 1,748 employees through indirect and induced effects. Those activities contributed $76 million in income to the State and an additional $270 million in industrial output. In all, Holloman AFB provided the State with 6,850 jobs, $420 million in wages and salaries, and $2.2 billion in total output throughout the fiscal year.

Impact figures suggest an employment multiplier of 1.34, or an equivalent of 1.34 jobs created in New Mexico for every position filled at Holloman AFB. The labor income multiplier is 1.22, implying that every dollar of income generated directly by Holloman AFB creates $1.22 in income for the New Mexico community. Likewise, a multiplier of 1.14 in output indicates that $1.14 are generated for every dollar of industrial output created by the base.

Table 7. Economic Impact of Holloman Air Force Base on the State of New Mexico, 2022 Dollars

	Employment	Labor Income	Output
Direct	5,102	$345,404,665	$1,898,406,080
Indirect & Induced	1,748	$75,512,776	$270,362,323
Total	**6,850**	**420,917,441**	**2,168,768,403**
Multiplier	1.34	1.22	1.14

Souce: IMPLAN; BBER

Kirtland Air Force Base

Of the installations discussed in this report, Kirtland AFB employs the most individuals. With 22,667 persons on payroll during fiscal year 2020, total salaries and wages are also the largest, at $905 million. These figures produce just under an estimated $5 billion in output for the State (Table 8).

Indirect and induced effects are similarly large, relative to the other bases, given the sizable direct injections. Employment in the State is expected to grow by an additional 7,459 indirect and induced jobs with total labor incomes of $355 million. The base further contributes over $1.2 billion in indirect and induced output for the State. The total effect is 30,126 jobs, $1.3 billion in labor income, and $6.2 billion in output.

Table 8. Economic Impact of Kirtland Air Force Base on the State of New Mexico, 2022 Dollars

	Employment	Labor Income	Output
Direct	22,667	$904,608,563	$4,971,891,148
Indirect & Induced	7,459	$354,658,669	$1,225,940,722
Total	**30,126**	**1,259,267,232**	**6,197,831,869**
Multiplier	1.33	1.39	1.25

Source: IMPLAN; BBER

Kirtland AFB multipliers are like those determined at Cannon AFB and Holloman AFB. Employment grows by a multiplier of 1.33—a net of 1.33 jobs for every position filled at Kirtland AFB. Labor income expands by 1.39, or a gain of $1.39 in income for every dollar of payroll at the base. The industrial output multiplier specifies that an estimated $1.26 is generated for every dollar of direct output at Kirtland AFB.

White Sands Missile Range

Data from White Sands MR are limited to military personnel, described as *boots on the ground*. Estimations from of these data are shown in Table 9.

During fiscal year 2020, White Sands MR supported 6,023 military personnel with incomes estimated at $605 million. Those figures, alone, generate an estimated $3.3 billion in industrial output. Indirect and induced effects contribute an additional 2,856 jobs to the State. Those jobs receive an estimated $121 million in wages and salaries and contribute to $432 million in industrial output. In all, White Sands MR supports an estimate total of 8,879 jobs, $726 million in income, and $3.8 billion in industrial output.

Table 9. Economic Impact of White Sands Missile Range on the State of New Mexico, 2022 Dollars

	Employment	Labor Income	Output
Direct	6,023	$604,977,176	$3,325,063,222
Indirect & Induced	2,856	$121,413,868	$431,671,556
Total	**8,879**	**726,391,044**	**3,756,734,778**
Multiplier	1.47	1.20	1.13

Source: IMPLAN; BBER

Multipliers at this site, using only military personnel data, are in line with those estimated at the other New Mexico bases. Jobs see a multiplier of 1.47, indicating that every military job assigned to White Sands MR

contributes 1.47 jobs the State. The labor income multiplier of 1.20 suggests that $1.20 in New Mexico salaries are created for each dollar provided to base personnel. Output figures grow by a multiplier of 1.13, suggesting that every dollar in output generated by this base creates $1.13 in industrial output for the State.

Total Impact

The combined effect of each military installation is discussed next; results are shown in Table 10. These figures illustrate the sum of each economic impact described previously. The direct injection of 38,599 jobs is larger than the total military employment recorded by the Bureau of Labor Statistics (18,074). It is important to consider that the present analysis estimates the impact of the installations as a whole, including active duty, civilian, and contractor positions. Direct entries for labor income and industrial output total more than $2.2 billion and $12 billion, respectively.

Table 10. Total State Economic Impact of Military Installations in New Mexico, 2022 Dollars

	Employment	Labor Income	Output
Direct	38,599	$2,186,927,905	$12,019,748,580
Indirect & Induced	13,669	$620,191,875	$2,171,650,784
Total	**52,268**	**$2,807,119,780**	**$14,191,399,364**
Multiplier	1.35	1.28	1.18

Souce: IMPLAN; BBER

An estimated 13,669 jobs are expected as indirect and induced impacts, a growth of 35% from direct inputs. Additionally, $620 million in labor income and $2.2 billion in output are seen through these secondary effects—growths of 28% and 18% above direct figures, as determined through multipliers.

Every job created at these military installations, thus, generates 1.35 additional jobs in the State. Each dollar in income paid to installation employees contributes to $1.28 in additional New Mexico wages. Likewise, every dollar in output generates $1.18 for the State economy.

Economic impacts are experienced across a variety of industries. Tables 11 and 12 show a portion of these effects for employment and industrial output, by industry. As expected, employment and output generated by the military installations produce the greatest effect, given large contributions as direct inputs. The remaining impacts are largely due to base employees' spending.

Table 11 illustrates the ten New Mexico industries most affected, jobt-wise, by installation employment, payroll, and output. In short, these are restaurants, healthcare, retail, and real estate. The restaurant industry is expected to benefit by 975 jobs. Installation presence further supports 1,183 jobs in healthcare, 460 jobs in retail, and 211 in real estate.

Table 11. Ten Industries Most Affected by Military Installations in New Mexico, Employment

1	Federal government, military	38,606
2	Full-service restaurants	491
3	Limited-service restaurants	484
4	Hospitals	392
5	Individual and family services	277
6	Offices of physicians	269
7	Home health care services	245
8	General retail merchandise stores	244
9	Mischellaneous retail stores	216
10	Other real estate	211

Souce: IMPLAN; BBER

The ten most affected industries, by output, are in Table 12. Following military activity, owner-occupied dwellings provide about $161 million in output to the State. This is a category which describes homeownership, considered an industry because homes tend to amass value. Hospitals are next, providing $77 million in output, followed by other real estate ($44million). Insurance and restaurant services (limited- and full-service) are also included on the list, with outputs estimated at $41 million and $67 million (total restaurant impact), respectively.

Table 12. Ten Industries Most Affected by Military Installations in New Mexico, Industrial Output

1	Federal government, military	$12,023,162,499
2	Owner-occupied dwellings	$161,051,432
3	Hospitals	$76,963,482
4	Other real estate	$44,193,232
5	Insurance carriers, except direct life	$41,091,242
6	Limited-service restaurants	$39,458,575
7	Tenant-occupied housing	$37,296,907
8	Offices of physicians	$36,996,731
9	Full-service restaurants	$33,881,259
10	Local government	$27,657,989

Souce: IMPLAN; BBER

Tenant-occupied housing refers to housing rentals. That section is expected to create $37 million in output, similar to that seen for offices of physicians. Lastly, local government outputs are expected to expand by almost $28 million.

Conclusion

This paper reviews the economic impact of the military installations in New Mexico on the State. Contributions from Cannon AFB (including Melrose AFR), Holloman AFB, Kirtland AFB, and White Sands MR are evaluated. Total impacts record 52,268 jobs, $2.8 billion in labor income, and more than $14 billion in industrial output.

The 52,268 direct, indirect, and induced jobs generated by these installations is equal to roughly double that of mining, quarrying, and oil & gas jobs in the State during 2020.

Employment-wise Cannon AFB (along with Melrose AFR) is the smallest of the four bases. 4,807 personnel are employed directly at this location. An additional 1,606 jobs are created through indirect and induced effects for a total employment impact of 6,413. Cannon AFB and Melrose AFR alone are responsible for creating job numbers akin to those attached to the management of companies and enterprises New Mexico industry in 2020. Cannon AFB employment impacts account for 12 percent of total State employment impacts. Total labor income effects are equal to $400 million (14% of the State total). Cannon AFB further supports the State economy through $2.1 billion in industrial output (15% of the total State output impact).

Holloman AFB is the third-largest producer of jobs between the analyzed bases. The total employment impact of 6,850 jobs is the sum of 5,102 directly created jobs and 1,748 indirect and induced jobs. Holloman AFB employment totals are like those produced by Cannon AFB and are also comparable to total employment in the management of companies and enterprises industry. 6,850 jobs are 13 percent of the total cumulative State impact for employment. Labor income impacts total $421 million (15% of the State total). Holloman AFB industrial output is estimated at $2.2 billion, also 15 percent of State totals.

While White Sands MR is the largest base with regard to acreage, Kirtland AFB is the largest regarding employment, labor income, and output. A direct injection of 22,667 jobs by Kirtland AFB, generates a total of 30,126 jobs in the State, or 57 percent of the total effect generated by the bases, combined. The total effect of thirty thousand jobs created by Kirtland AFB is akin to total employment in each of Manufacturing and Transportation & Warehousing industries in the State, in 2020. Labor income and output totals created by this base account for 45 percent and 44 percent of the cumulative total.

Available White Sands MR data was limited but utilizing only employment figures creates a generous employment impact, nonetheless. A direct effect of just over six thousand active-duty federal employees, contributes an additional 2,856 jobs through secondary effects. Combined, the total employment effect attributed to this base is 8,879 positions—17% of the total State impact. Additionally, these employment figures are estimated to contribute $726 million to statewide wages and $3.8 billion to State output.

Appendix

IMPLAN is an input-output modeling system that employs regional data to track and report buy-sell relationships between regional industries. This allows an investigator to estimate the economic impact of changes to the local economy. In this report, expenditures made by each base are traced to the various industries in the State of New Mexico.

IMPLAN data are updated annually as provided by the Bureau of Labor Statistics (BLS), the Bureau of Economic Analysis (BEA), and the U.S. Census Bureau (Census). Though IMPLAN uses data from more than ninety sources, the following are the main sources: Census of Employment and Wages, provided by BLS; Regional Economic Accounts and National Income and Product Accounts, both maintained by BEA; and County Business Patterns, authored by Census.

Industries are tracked through the North American Industrial Classification codes, or NAICS codes. IMPLAN bundles each NAICS code into the specific clusters used in the modeling system. For example, the IMPLAN cluster for Legal Services covers a scope of NAICS codes which include law offices, title companies, paralegal services, and more.

The IMPLAN model requires users to categorize a firm's spending into the various IMPLAN industries, based on their NAICS code. A direct $1 million expenditure for paralegal services, undertaken during the year of analysis would fall under NAICS code 541199, which coincides with IMPLAN code 455 for Legal Services. The $1 million expenditure is then routed through the IMPLAN algorithm to determine direct employment numbers, employee compensation, and output supported by that spending.

IMPLAN can determine these figures, based on any type of direct input (employment, labor income, or output—known as economic indicators) through Leontief Production Functions. These direct numbers are further cycled through the IMPLAN model to determine indirect and induced effects. The sum of direct, indirect, and induced effects is the total effect.

The $1 million generates jobs and income, at the firm staffing the paralegals—this is part of the direct impact. The firm then makes its own purchases of goods and services, which further generate economic indicators (these are indirect impacts). Employees at the firm will spend a portion of their salaries on the purchase of goods and services, further generating jobs, etc. These are known as induced effects.

Firms will, generally, spend in a variety of industries (legal services, warehousing, accounting, for example). The economic impact process is additive. Each industrial sector from which purchases are made will generate its economic indicators. IMPLAN will process this information, estimate missing data points, and generate a total output, which is considered the economic impact of the firm's presence in the geography—based on reported expenditures.