RESEARCH REPORT

The Impacts of US Military Service on Homeownership and Income

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Contents

Acknowledgments

Executive Summary

This report explores how serving in the US military or the presence of a large military institution can ease racial and ethnic disparities in homeownership and income. First, we compare the demographic characteristics of veterans and active-duty military members with the general population. We find that veterans have higher homeownership rates and incomes than the general population, even within racial or ethnic and age groups. Active-duty servicemembers generally have lower homeownership rates but higher incomes. Using a regression analysis, we find that veteran status and active-duty military status shrink racial and ethnic homeownership and income gaps. We then test the effects of a large military base on homeownership and income and find that although the effects are smaller than the effects of military status, the presence of a large military base further narrows the differences in homeownership and income between racial and ethnic groups.

The Impacts of US Military Service on Homeownership and Income

The US military is a large and diverse workforce. In this report, we show that military service is a catalyst for people of color to achieve both homeownership and increased earnings. This work builds on the Urban Institute's recent work on the racial homeownership gap, which showed that of the 100 metropolitan statistical areas with the largest black populations, the 3 with the smallest gaps between the black and non-Hispanic white (hereafter, white) homeownership rates contained large military bases: Killeen, Texas; Fayetteville, North Carolina; and Charleston, South Carolina.[1] This earlier study, which did not focus on the military connection, raised questions about whether military service increases access to homeownership and whether the presence of a military base has a further positive impact, especially for households of color. This report more thoroughly investigates these questions.

Prior studies have largely overlooked the relationship between the military and homeownership. Exceptions include studies by Fetter (2013), Loveless-Morris,[2] Spitzer and Lambie-Hanson,[3] and Clarksberg and Lapid (2019). Fetter (2013) finds that veteran benefits granted under the World War II and Korean War GI Bill explain 7.4 percent of the homeownership increase between 1940 and 1960[4] and 25 percent of the increase for men of the ages affected by the program. The GI Bill shifted home purchasing to an earlier period in life, and the homeownership differences between those who were affected and unaffected by the GI Bill disappeared later in life. Loveless-Morris shows that veteran status is associated with higher homeownership and housing wealth, especially for those who served before the Vietnam War.[5] Spitzer and Lambie-Hanson find that being near a military site is a strong predictor of county-level rates of mortgage lending from the US Department of Veterans Affairs (VA).[6] VA lending has become an increasingly important credit source since the financial crisis, particularly for servicemembers and veterans buying their first home (Clarksberg and Lapid 2019).

There are several explanations for increased homeownership and higher earnings for people serving in the military. Military service gives people (1) access to affordable mortgages through the VA loan guarantee program, which has no down payment or mortgage insurance requirements; (2) educational and health care benefits; and (3) a stable income. The presence of large military bases can have a further incremental impact because they improve access to information about VA lending, and the military base itself is a stable anchor employer, providing stable employment opportunities to local residents. Except for Spitzer and Lambie-Hanson,[7] prior studies have not investigated how the presence

of a military base affects access to homeownership or employment opportunities, and there has been no prior segmentation of veterans and servicemembers by race or ethnicity.

This report addresses two research questions:

- How does military service affect the relative homeownership rates of white, black, Hispanic, and Asian households?

- Does the presence of a nearby military base further reduce the racial and ethnic homeownership gap?

Before proceeding to our main empirical analysis, we first compare the demographic and socioeconomic characteristics of veterans and active servicemembers with the total population. Next, we examine how veteran status is associated with homeownership and income by age and race or ethnicity. We then turn to our regression analysis, estimating how veteran or active-duty military status is associated with homeownership, with a focus on whether the relationship differs by race or ethnicity. We also look into how proximity to a large military base enhances access to homeownership, especially for people of color. Finally, we summarize our findings and conclude with policy implications.

# Demographics of Veterans and Active-Duty Military Members

The 18.2 million military veterans make up 7.2 percent of the US population. The number of veterans reached a high of 23.4 million in 2005 and has declined ever since. The number of active servicemembers was between 2.0 and 2.2 million in the 1970s and 1980s. The size of the armed forces declined significantly during the 1990s and more slowly in the 2000s, reaching 1.3 million in 2017.

Veterans are older, more white, and less educated than the population as a whole. They have higher homeownership rates and higher incomes than the general population, controlling for race or ethnicity. Veterans also have smaller homeownership and income disparities by race or ethnicity. In contrast, active-duty servicemembers are younger and more closely reflect the racial and ethnic composition of the total population. As active-duty servicemembers, they have higher incomes and less income variation by race or ethnicity. They have lower homeownership rates at younger ages than veterans and the population as a whole, but they have the highest homeownership rates in the oldest age group we examine.

Figure 1 shows that the racial and ethnic distribution of active-duty servicemembers is similar to that of the total population, while veterans are disproportionately white. As a share of the total population, 8.8 percent of white people are veterans, followed by 0.7 percent of black people. About 0.5 percent of white, black, and Hispanic people currently serve in the military, compared with 0.3 percent of Asian people.

FIGURE 1
Racial and Ethnic Composition by Veteran Status
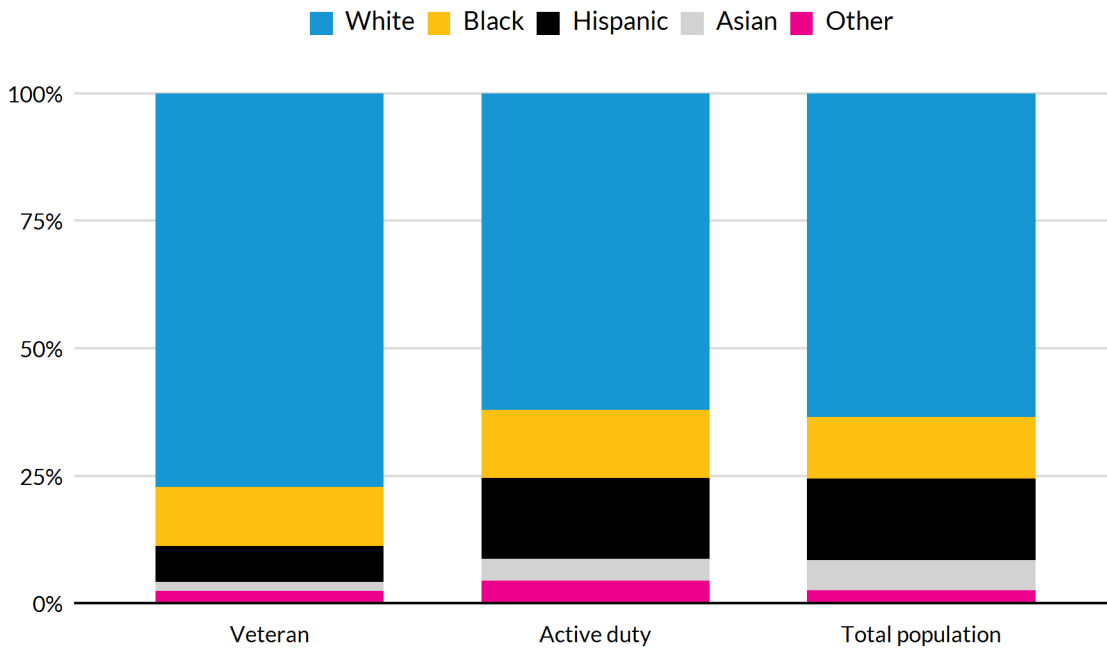
Source: 2017 American Community Survey.
Note: Includes only people 18 and older.

Veterans are relatively older than the total US population (figure 2). About 68 percent of veterans are older than 55 compared with 37 percent of the US population. Veterans (90 percent) and active-duty servicemembers (85 percent) are also more likely to be male.

FIGURE 2
Age Composition by Veteran Status
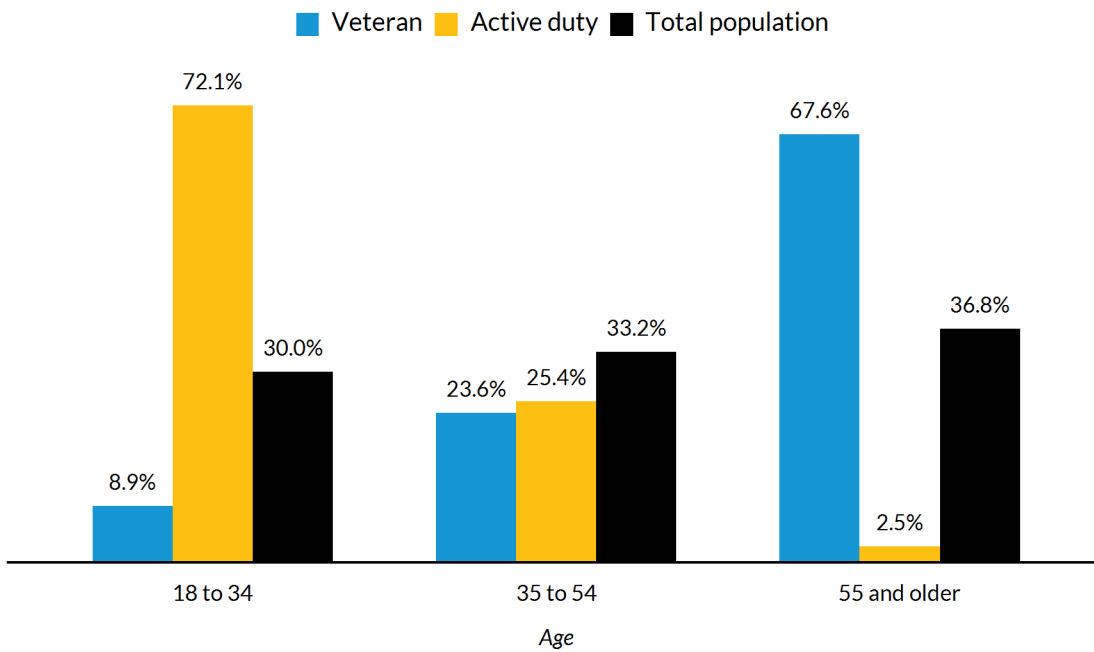
Source: 2017 American Community Survey.
Note: Includes only people 18 and older.

Compared with the total US population, fewer veterans have college degrees, reflecting the fact that the veteran population is older (figure 3). Close to 80 percent of active-duty servicemembers have received at least some college education, which is significantly higher than the share among the total population (55 percent). As a high school diploma is a requirement for serving the military, the average educational attainment is higher for active-duty servicemembers than the US average.

FIGURE 3

Educational Attainment by Veteran Status

■ Some high school　■ High school diploma　■ Some college　■ College degree
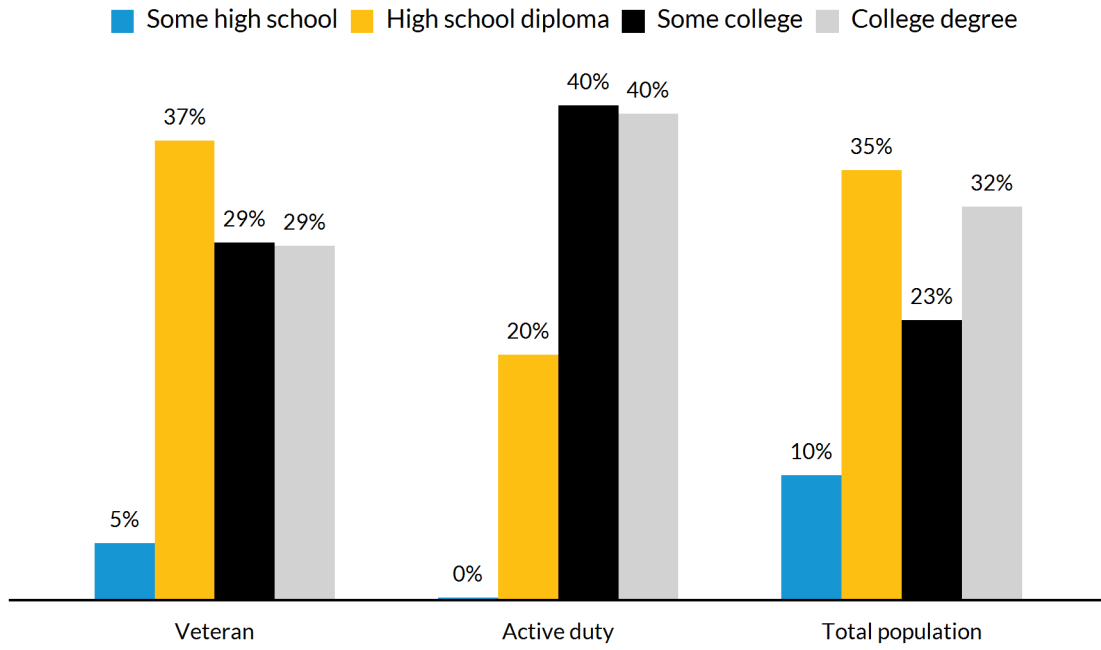
Source: 2017 American Community Survey.
Note: Includes only people 25 and older.

Homeownership and Income

In this section, we compare homeownership and household income for veterans, active-duty servicemembers, and the total population. All analyses are at the household level. We define veteran and active-duty military households as those with at least one household member who is a veteran or active-duty servicemember. Other characteristics reported are the characteristics of the household head.

Homeownership

In 2017, the 78 percent of veteran households were homeowners, 14 percentage points higher than for the total population. Active-duty servicemembers, who are mobile and often have housing provided on a military base, had a 43 percent homeownership rate, considerably lower than for veterans and the total population.

FIGURE 4
Homeownership Rates by Veteran Status
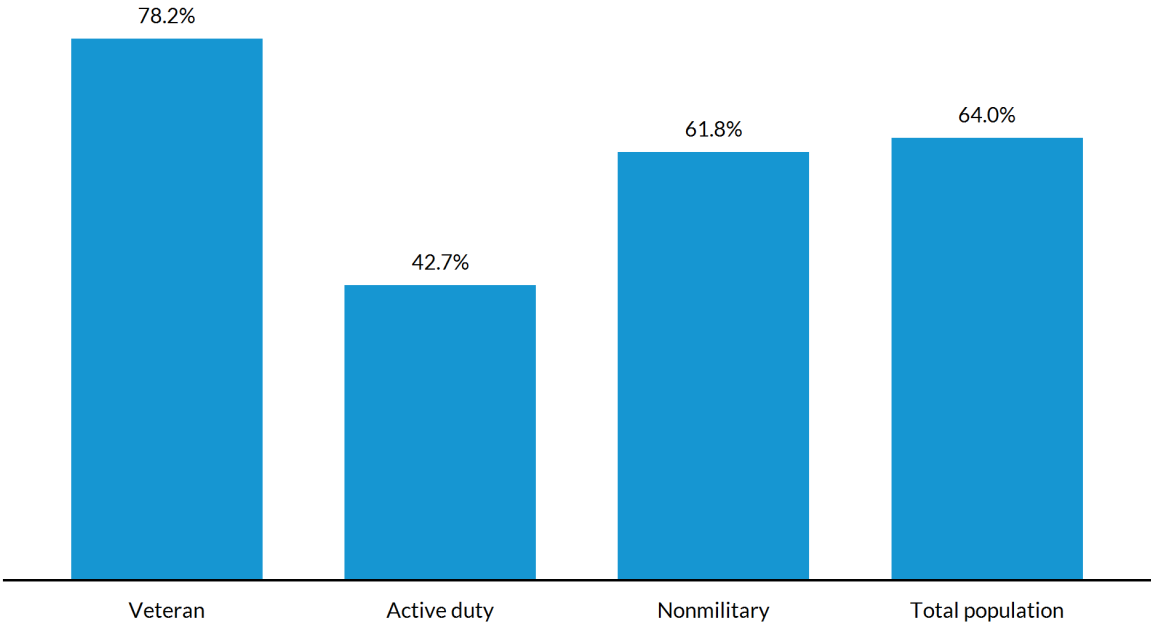
Source: 2017 American Community Survey.
Note: Includes households where the head of household is 18 or older.

Because older people are more likely to be homeowners and because many veterans are older than 55, we calculate the homeownership rate for three age buckets: ages 18 to 34, ages 35 to 54, and ages 55 and older. For the youngest two age buckets, veteran households have the highest homeownership rate and active-duty servicemembers have the lowest. But for household heads ages 55 and older, active-duty servicemember households have the highest homeownership rate (87 percent). For all age buckets, the homeownership gaps between veteran households and the total population are between 5 and 10 percentage points, lower than the 14 percentage-point gap in figure 4, which did not consider age.

FIGURE 5

Homeownership Rates by Veteran Status and Age

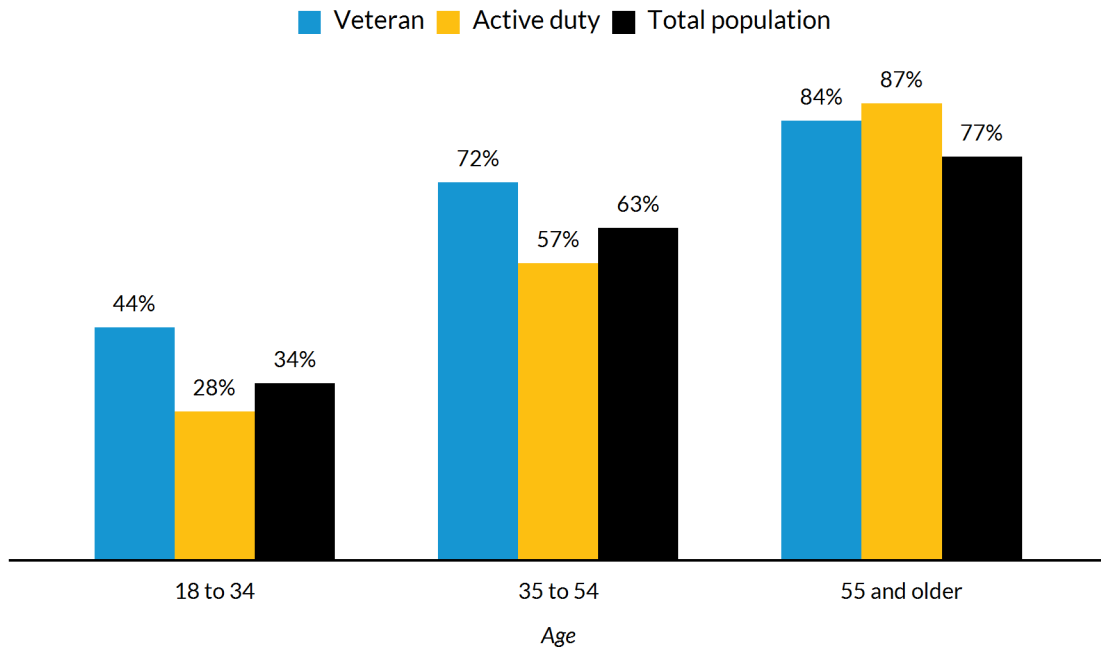**Source:** 2017 American Community Survey.
Note: Includes households where the head of household is 18 or older.

Figure 6 shows homeownership rates by race or ethnicity. For all five groups, veteran households have higher homeownership rates than the total population. The racial and ethnic homeownership gap is smaller for veteran households and active-duty military households compared with the total population. For example, the black-white homeownership gap is 30 percentage points for the total population but is 19 percentage points among veteran households and 11 percentage points among households with active-duty servicemembers.

Homeownership Rates by Veteran Status and Race or Ethnicity

■ Veteran ■ Active duty ■ Total population

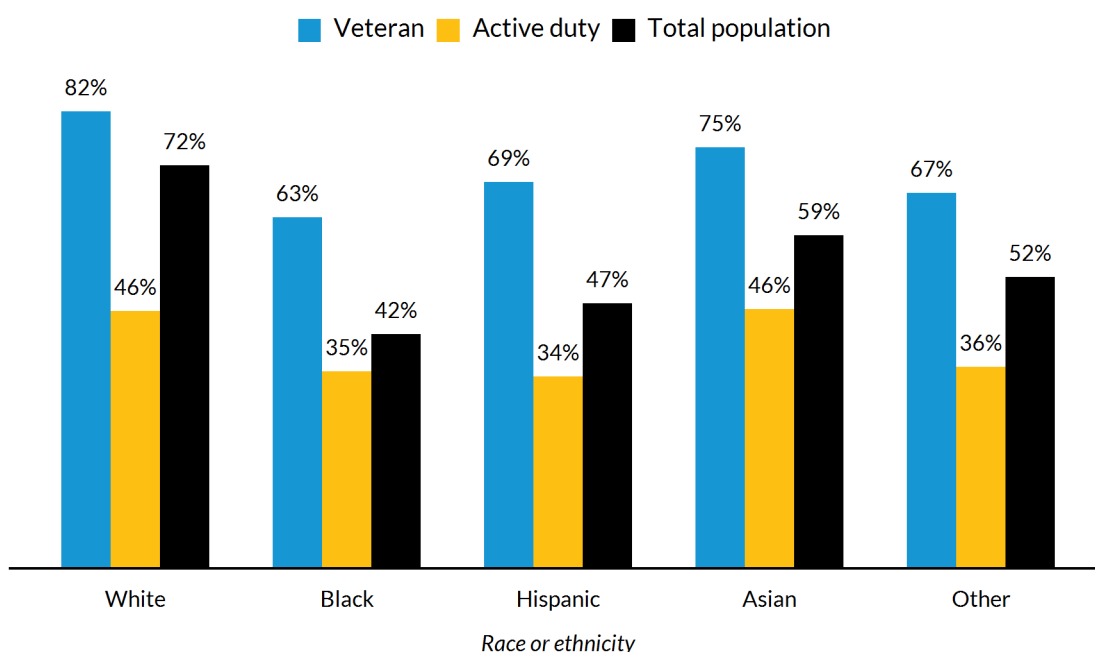*Race or ethnicity*

Source: 2017 American Community Survey.
Note: Includes households where the head of household is 18 or older.

Figure 7 presents the homeownership rates by race or ethnicity for three age buckets. For every age group, the gap between white and black, Hispanic, or Asian veterans is lower than for the general population. For 35-to-54-year-olds, the gap between white and black veterans is 18 percentage points (76 percent versus 58 percent), smaller than the 32 percentage points (72 percent versus 40 percent) between black and white people in the general population. Similarly, for every age group, the gap between white and black, Hispanic, or Asian active-duty servicemembers is lower than for the general population. For 35-to-54-year-olds, the black-white homeownership gap among active-duty military households is only 4 percentage points (60 percent versus 56 percent), compared with 32 percentage points for the general population.

As homeownership is an important wealth-building tool (Goodman and Mayer 2018), smaller homeownership gaps by race or ethnicity also means smaller wealth gaps. According to the Panel Study of Income Dynamics, the black-white housing wealth gap in 2017 was $48,500 for households with veterans and active-duty servicemembers[8] ages 35 and 54, but the gap was $71,500 for nonmilitary households.

FIGURE 7

Homeownership Rates by Veteran Status and Race or Ethnicity, for Three Age Buckets
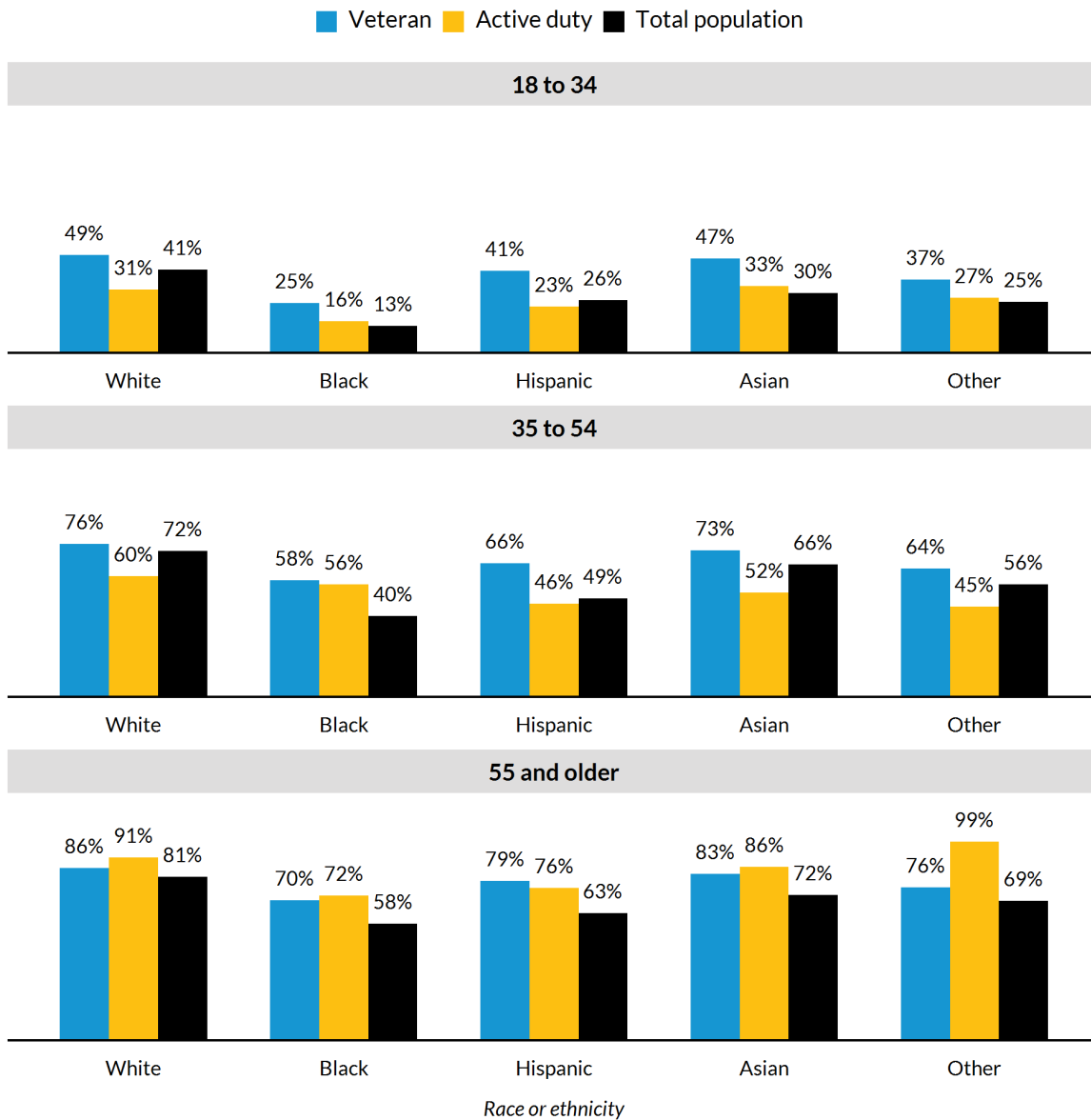
■ Veteran ■ Active duty ■ Total population

18 to 34

	White	Black	Hispanic	Asian	Other
Veteran	49%	25%	41%	47%	37%
Active duty	31%	16%	23%	33%	27%
Total population	41%	13%	26%	30%	25%

35 to 54

	White	Black	Hispanic	Asian	Other
Veteran	76%	58%	66%	73%	64%
Active duty	60%	56%	46%	52%	45%
Total population	72%	40%	49%	66%	56%

55 and older

	White	Black	Hispanic	Asian	Other
Veteran	86%	70%	79%	83%	76%
Active duty	91%	72%	76%	86%	99%
Total population	81%	58%	63%	72%	69%

Race or ethnicity

Source: 2017 American Community Survey.
Note: Includes households where the head of household is 18 or older.

Income

Veteran households and active-duty military households have higher median household incomes than nonmilitary households. The median income among veteran households in 2017 was $66,800, $8,800

higher than among nonmilitary households. Households with active-duty servicemembers had the highest median income ($71,000).
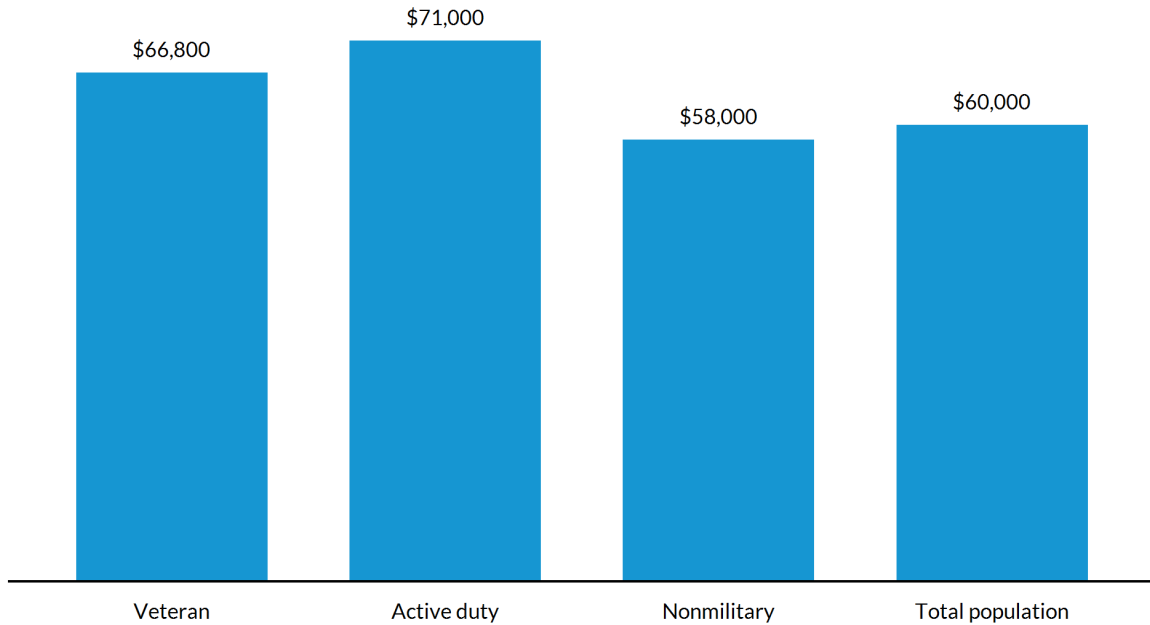
Median Household Income by Veteran Status

Source: 2017 American Community Survey.
Note: Includes households where the head of household is 18 or older.

The racial or ethnic income gap is smaller for veteran households and active-duty military households compared with the total population. Median income for Asian and Hispanic veteran households is higher than the median income of white veteran households.The median income among black veteran households is only $7,100 lower than that of white veteran households, smaller than the $25,000 gap among the total population. The median black-white household income gap is $16,000 for active-duty military households.

FIGURE 9
Median Household Income by Veteran Status and Race or Ethnicity

■ Veteran ■ Active duty ■ Total population

Race or ethnicity

Source: 2017 American Community Survey.
Note: Includes households where the head of household is 18 or older.

We further break down income (by both race or ethnicity and age) and show that veteran and active-duty military households have higher incomes across all age and racial or ethnic groups. Active-duty military and veteran households have higher median incomes than the total population, but the biggest differences are for households of color (figure 10). For instance, among black households ages 35 to 54, the median household income was $71,200 for veteran households and $88,000 for active-duty military households, compared with only $48,000 for all households. For white households in the same age group, the differences were smaller. Median income was $95,500 for veteran households, $100,000 for active-duty military households, and $87,000 for all households.

FIGURE 10

Median Household Income by Veteran Status, Race or Ethnicity, and Age
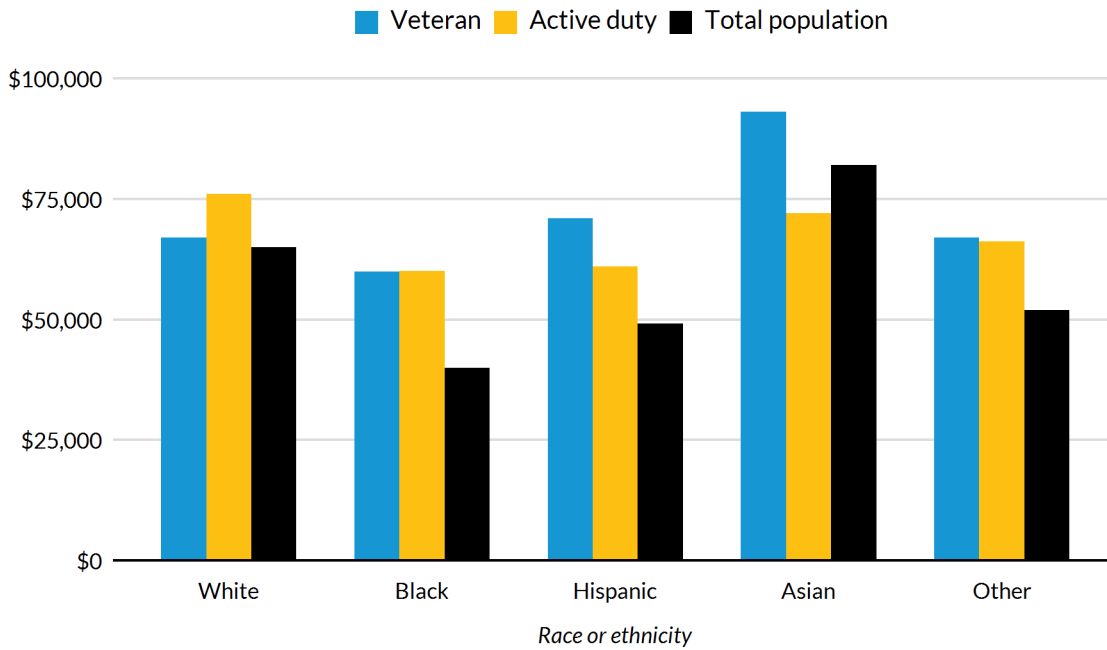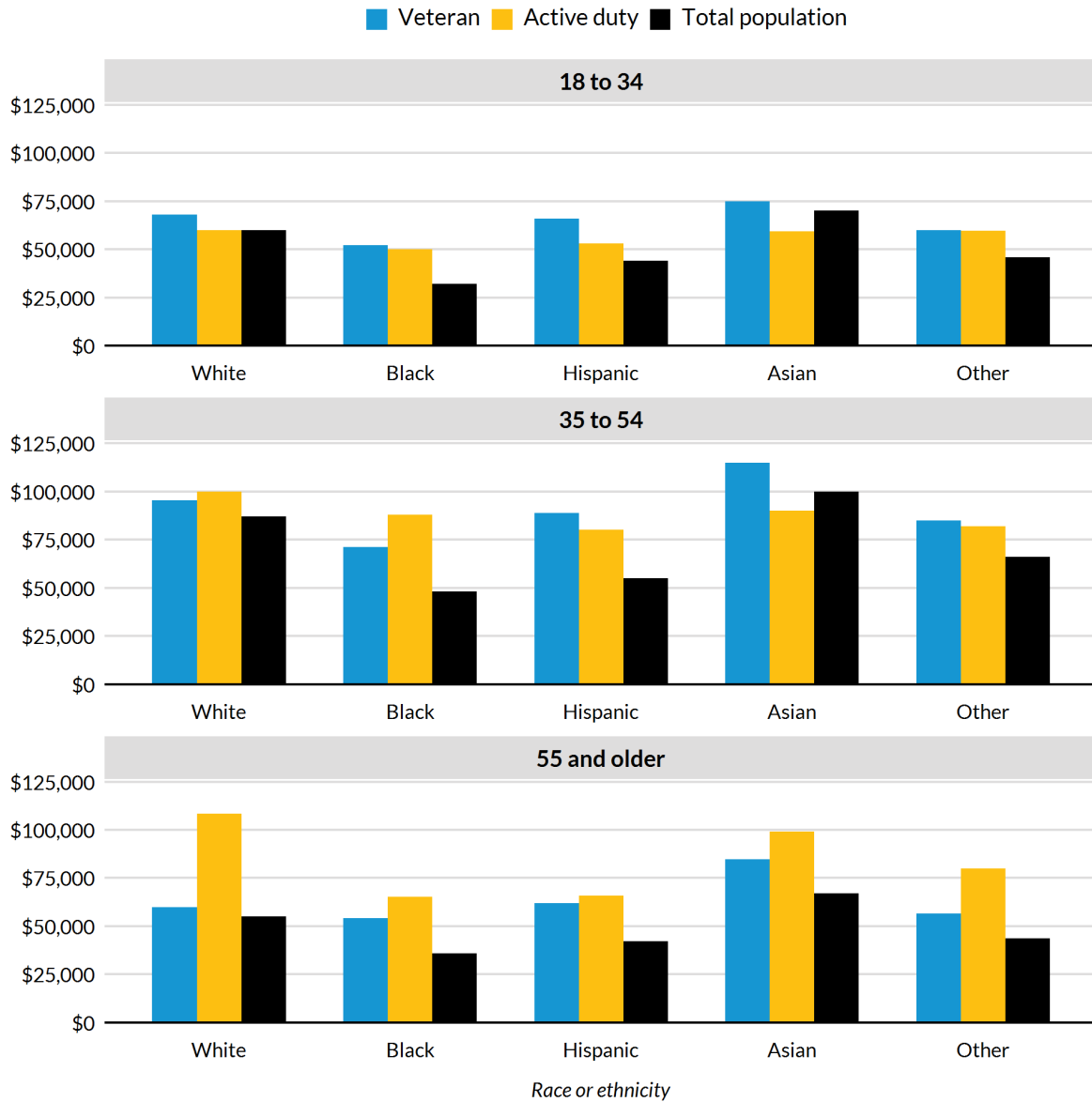
■ Veteran ■ Active duty ■ Total population

Source: 2017 American Community Survey.

Note: Includes households where the head of household is 18 or older.

Testing the Impact of Military Status

Data and Summary Statistics

Data on active-duty military, veteran, and nonmilitary households come from the 2017 American Community Survey (ACS). Active-duty servicemembers are defined by their industry. A household is considered a veteran or active-duty military household if any member has veteran or active-duty military status.[9]

Table 1 presents summary statistics by the military statuses (veteran, active-duty military, nonmilitary) that are included in our regression analyses. Veteran households have the highest homeownership rate (79 percent), followed by nonmilitary households (64 percent). Less than 50 percent of active-duty servicemembers are homeowners. Part of this is caused by high mobility rates among active-duty servicemembers. Also, many active-duty servicemembers receive housing while they serve. Differences in the age distribution also play a role, as homeownership increases with age. The average age of a houshold head among veterans is 62, but the average age is 38 for active-duty servicemembers. The nonmilitary household head is, on average, 52 years old. About one-third of veterans and active-duty servicemembers are female, which is substantially lower than the female share among the nonmilitary population.

Active-duty household heads have high educational attainment; 44 percent have college degrees. The marital rate is also high; about two-thirds are married, which is about 25 percentage points higher than the rate among the nonmilitary population. Sixty-seven percent of veteran household heads are married. About 60 percent of active-duty household heads live with children. Only 29 percent of veteran household heads have children in their household because veterans are significantly older, so most children have already moved out. Household income also varies by military status. The average household income is $90,800 for active-duty military households, $87,600 for veteran households, and $85,000 for nonmilitary households. (These are averages and are higher than the medians reported in the previous section.) Veteran households have a lower unemployment rate than the other two groups.

We include three public use microdata area (PUMA)–level variables in some of our regressions: (1) whether the PUMA contains a large military base, (2) distance to the nearest large base, and (3) median home value of the PUMA where the household resides. PUMAs are geographic boundaries defined by the US Census Bureau and contain at least 100,000 people.

TABLE 1
Summary Statistics

	Nonmilitary		Veteran		Active-duty military	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Household-level (head) characteristics						
Homeownership	0.64	0.48	0.79	0.41	0.48	0.50
Household income ($)	84,839	94,018	87,560	82,511	90,796	62,612
Age	51.91	16.08	62.34	15.82	37.24	10.50
Female	0.53	0.50	0.31	0.46	0.33	0.47
College	0.36	0.48	0.31	0.46	0.44	0.50
Married	0.49	0.50	0.67	0.47	0.74	0.44
Has children	0.41	0.49	0.29	0.45	0.60	0.49
Unemployed	0.02	0.14	0.01	0.11	0.02	0.15
PUMA-level characteristics						
PUMA contains large military base	0.09	0.29	0.14	0.34	0.47	0.50
Miles to nearest large military base	77.18	62.97	76.30	64.89	32.49	50.89
Median home value	273,611	216,867	236,683	168,622	263,925	177,315
Observations	1,012,483		186,376		6,592	

Source: 2017 American Community Survey.
Note: PUMA = public use microdata area.

We gathered the locations of military bases from TIGER shapefiles from the Census Bureau. Although there are 831 military bases in the US and its territories, we isolated large bases and included only bases that are significant employers in their area. Data for base employment comes from Defense Manpower Data Center personnel data from 2009, which is the most recent report that provides employment by military bases. We selected only bases that employed at least 400 people, civilians, and active-duty servicemembers, as of 2009. For each PUMA, we calculated the distance from the centroid of the PUMA to the centroid of the nearest military base. We also generated a flag if the PUMA and military base centroids overlapped.

As expected, active-duty households are most likely to live in PUMAs with military bases (47 percent). Fourteen percent of veteran households live in PUMAs with bases versus less than 10 percent of nonmilitary households. The distance to the closest base also varies across the three groups. The average distance to the nearest base is 32 miles for active-duty military households and more than 75 miles for both veteran and nonmilitary households. Active-duty military households and nonmilitary households live in PUMAs with higher median home prices compared with veterans. The average median PUMA-level home price is $273,000 for nonmilitary households, $267,000 for active-duty military households, and $237,000 for veteran households.

Echoing prior research, we note the potential for self-selection bias. Because many of today's veterans and active-duty servicemembers enlisted voluntarily, they may have different traits than people who do not choose to serve in the military (Angrist 1998). This may affect some of the

differences in homeownership and income we see between people who served in the military and those who did not.

Regression Analysis: Impacts of Military Status on Homeownership

This section presents results from a regression analysis that examines the relationship between military status and homeownership after controlling for demographic and socioeconomic characteristics. Although the dependent variable is binary (1 = homeowners, 0 = otherwise), we use an ordinary least squares regression, which enables us to interpret the coefficients as marginal effects. According to Angrist and Pischke (2009), the difference between marginal effects calculated from the ordinary least squares and logit (or probit) models is minor when the mean of the dependent variable ranged from 0.2 to 0.8. The mean US homeownership rate in 2017 was 64 percent.

Military Status and Homeownership

Column 1 of the regression results in table 2 shows that veteran households have a higher homeownership rate (12 percentage points) than nonmilitary households. Column 1 also shows that the black and the Hispanic homeownership rates are 31 and 22 percentage points lower, respectively, than the white homeownership rate. We add state fixed effects to control for unobserved local characteristics.

In column 2, we add demographic and socioeconomic characteristics, including age, sex, educational attainment, marital status, presence of children in the household, and household income. We control for local housing market conditions by adding the log of the average home value by PUMA. We find that once additional variables are added, the relationship between military status and homeownership weakens substantially; veteran households' homeownership rate is about 1.2 percent higher than for nonmilitary households. The homeownership gap between minority households and white households also shrinks once the control variables are added. In column 2, the gap between black and white households decreases to 21 percentage points and the Hispanic-white homeownership gap declines to 15 percentage points.

TABLE 2

Tenure Choice Regression

	(1)	(2)	(3)	(4)
Veteran	0.120***	0.012***	-0.010***	0.012***
	(0.001)	(0.001)	(0.001)	(0.001)
Active military	-0.194***	-0.112***	-0.115***	-0.145***
	(0.006)	(0.005)	(0.005)	(0.006)
Black	-0.309***	-0.212***	-0.224***	-0.213***
	(0.001)	(0.001)	(0.001)	(0.001)
Hispanic	-0.221***	-0.148***	-0.158***	-0.148***
	(0.001)	(0.001)	(0.001)	(0.001)
Asian	0.024***	-0.004	-0.006***	-0.004
	(0.003)	(0.002)	(0.002)	(0.002)
Other race	-0.152***	-0.101***	-0.106***	-0.101***
	(0.002)	(0.002)	(0.002)	(0.002)
Age		0.027***	0.027***	0.027***
		(0.0001)	(0.0001)	(0.0001)
Age^2		-0.0002***	-0.0002***	-0.0002***
		(0.00000)	(0.00000)	(0.000)
College degree		0.091***	0.090***	0.091***
		(0.001)	(0.001)	(0.001)
Married		0.191***	0.192***	0.191***
		(0.001)	(0.001)	(0.001)
Has children		0.055***	0.055***	0.055***
		(0.001)	(0.001)	(0.001)
Unemployed		-0.048***	-0.048***	-0.048***
		(0.003)	(0.003)	(0.003)
Female		0.006***	0.006***	0.006***
		(0.001)	(0.001)	(0.001)
Log household income		0.043***	0.043***	0.043***
		(0.0003)	(0.0003)	(0.0003)
Log PUMA home value		-0.087***	-0.087***	-0.087***
		(0.001)	(0.001)	(0.001)
Veteran * black			0.093***	
			(0.003)	
Veteran * Hispanic			0.124***	
			(0.004)	
Veteran * Asian			0.053***	
			(0.009)	
Veteran * other race			0.044***	
			(0.006)	
Active military * black				0.143***
				(0.016)
Active military * Hispanic				0.076***
				(0.015)
Active military * Asian				0.039
				(0.029)
Active military * other race				0.053**
				(0.023)
Constant	0.774***	0.316***	0.327***	0.317***
	(0.003)	(0.012)	(0.012)	(0.012)
State fixed effects	Yes	Yes	Yes	Yes
Observations	1,205,451	1,205,451	1,205,451	1,205,451

	(1)	(2)	(3)	(4)
R^2	0.081	0.251	0.252	0.251

Source: 2017 American Community Survey.

Notes: PUMA = public use microdata area. Standard errors are in parentheses. The dependent variable is homeownership (1 = homeowners, 0 = otherwise). All regressions are weighted by household weights provided by the American Community Survey. *** $p < 0.01$; ** $p < 0.05$.

In column 3, we further interact race and ethnicity dummy variables with military status. The veteran dummy indicates the homeownership gap between white veteran households and white nonmilitary households. We find that white veteran households have slightly lower homeownership rates than white nonmilitary households, but the gap is close to zero. The interaction terms for black, Hispanic, and Asian households are all positive and significant, suggesting that VA status reduces the racial and ethnic homeownership gap.

We also include a dummy variable for active-duty military status to determine whether serving in the military affects homeownership. The homeownership rate among actue-duty military households is about 19 percentage points lower than for households without active-duty servicemembers. Columns 2 and 3 show that after controlling for socioeconomic and demographic characteristics, the relationship between the active-duty military dummy and homeownership weakens (although it is still negative and statistically significant); the homeownership gap between active-duty military and nonmilitary households drops from 19 to 11 percentatge points. The interaction terms in column 4 show that the homeownership gap between active-duty military households and households that are not is smaller for people of color than for white people.

Military Status and Homeownership by Race or Ethnicity

A close look the interaction terms between veteran status and race or ethnicity and active-duty military status and race or ethnicity shows that military status has a larger impact for people of color. Figure 11 shows the interaction terms between veteran status and the race or ethnicity dummy variables. Each bar represents the difference in homeownership between veteran and nonmilitary households within a racial or ethnic group. White veterans are very marginally less likely to be homeowners, but the opposite is true for black, Hispanic, and Asian households. For black households, there is a 8.3 percentage-point homeownership gap between veteran households and nonmilitary households. For Hispanic households, the gap is 11.4 percentage points, and for Asian households, the gap is 3.3 percentage points.

FIGURE 11

**Homeownership Differences between Veteran
and Nonmilitary Households, by Race or Ethnicity**

0.114***

0.083***

0.043***

-0.010***

White   Black   Hispanic   Asian
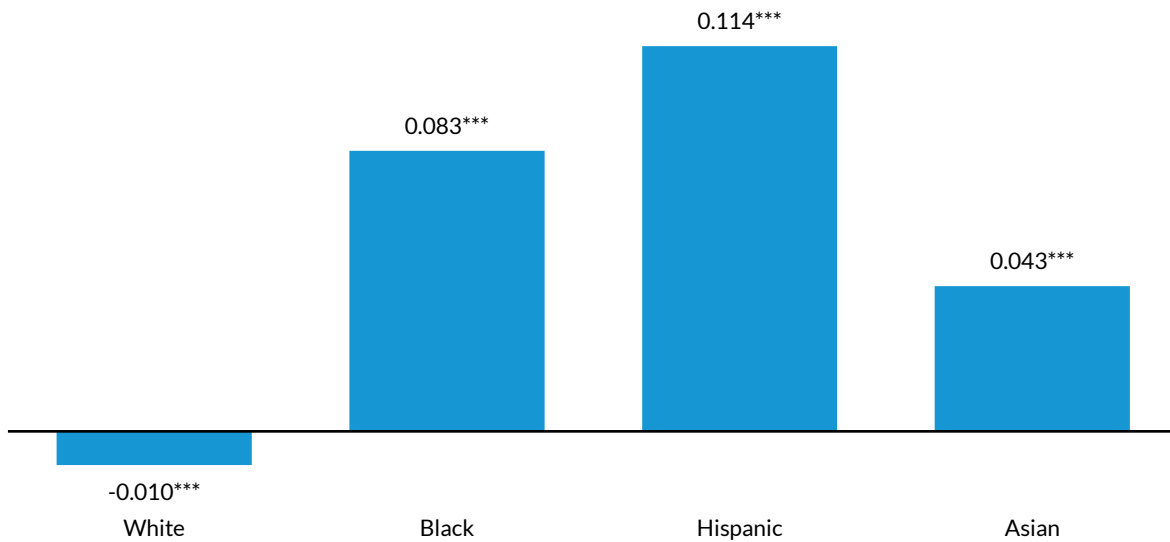
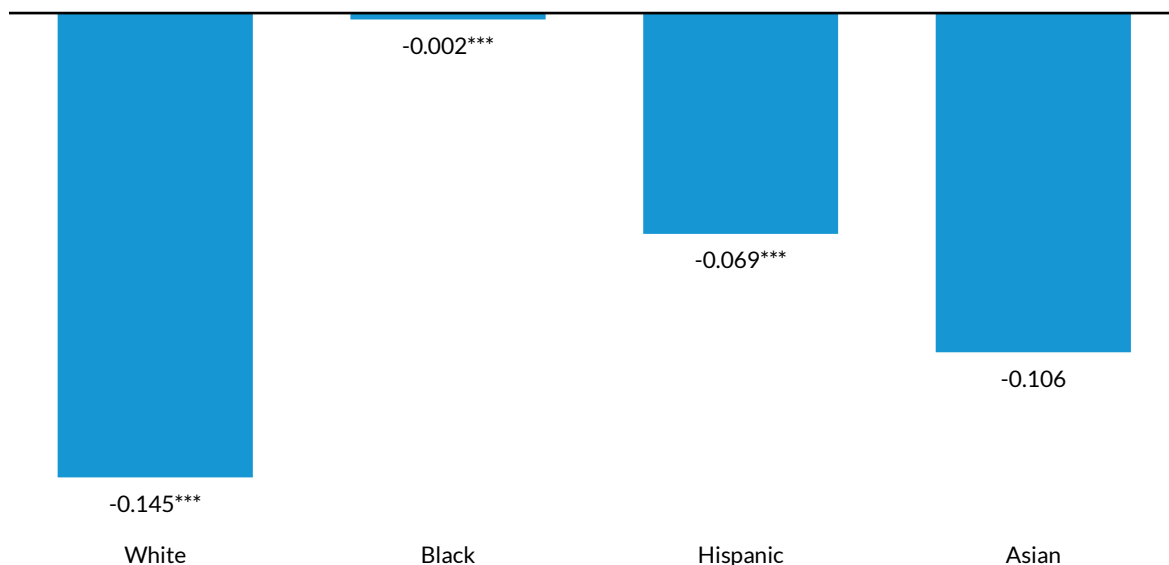**Source:** 2017 American Community Survey.

Notes: The dependent variable is homeownership (1 = homeowners, 0 = otherwise). For black, Hispanic, and Asian households, the asterisks indicate whether the size of the coefficient is significantly different from the white coefficient. The numbers are calculated from column 3 in table 2. For example, we add the coefficient for veterans (-0.01) and the coefficient from the interaction term black * veterans (0.093) to calculate the difference in the homeownership rate between black veteran and black nonmilitary households (0.083).

*** $p < 0.01$.

When we look at the effects of active military duty on homeownership by race or ethnicity, we see a similar pattern. Figure 12 shows the interaction terms between active-duty military status and the race and ethnicity dummy variables. Active-duty military status decreases the homeownership rate for all households, but white households see the largest decline, which, again, narrows the homeownership gap. For black households, we find almost no gap in homeownership between active-duty military and nonmilitary households.

FIGURE 12

**Homeownership Differences between Active-Duty Military
and Nonmilitary Households, by Race or Ethnicity**

Source: 2017 American Community Survey.
Notes: The dependent variable is homeownership (1 = homeowners, 0 = otherwise). For black, Hispanic, and Asian households, the asterisks indicate whether the size of the coefficient is significantly different from the white coefficient. The numbers are calculated from column 4 in table 2.
*** $p < 0.01$.

These results also illustrate how important the military has been in closing the homeownership gap. The regression results indicate that all else constant, the homeownership gap between white and black nonmilitary households is 22 percent; it is 13 percent for veteran households and 7 percent for active-duty military households. The homeownership gap between white and Hispanic nonmilitary households is 16 percent; it is 4 percent for veteran households and 7 percent for active-duty military households.

Regression Analysis: Impacts of Military Status on Income

This section presents results from a regression analysis that examines the relationship between military status and household income after controlling for demographic and socioeconomic characteristics. Income is a key variable that affects homeownership and future wealth.

Military Status and Household Income

Table 3 shows that veteran households have higher incomes than nonmilitary households. This relationship holds after including the control variables. For example, the coefficient in column 2 shows that even after including demographic and socioeconomic variables (e.g., age, sex, marital status, and educational attainment) and state fixed effects, household income in veteran households is about 16 percent higher than in nonmilitary households. We also find that active-duty servicemembers have higher incomes than servicemembers who are not active duty. After including control variables, military service increases household income 10 percent. The interaction terms in columns 3 and 4 show that military service increases household income for black and Hispanic households more than it does for white households among both veterans and active-duty servicemembers.

TABLE 3
Income Regression

	(1)	(2)	(3)	(4)
Veteran	0.207***	0.174***	0.121***	0.174***
	(0.004)	(0.004)	(0.005)	(0.004)
Active military	0.375***	0.108***	0.101***	0.026
	(0.019)	(0.018)	(0.018)	(0.022)
Black	-0.642***	-0.358***	-0.390***	-0.360***
	(0.005)	(0.004)	(0.005)	(0.004)
Hispanic	-0.376***	-0.300***	-0.322***	-0.301***
	(0.005)	(0.004)	(0.005)	(0.004)
Asian	0.168***	-0.238***	-0.250***	-0.238***
	(0.009)	(0.008)	(0.008)	(0.008)
Other race	-0.157***	-0.116***	-0.126***	-0.116***
	(0.008)	(0.007)	(0.008)	(0.007)
Age		0.036***	0.035***	0.036***
		(0.001)	(0.001)	(0.001)
Age^2		-0.0004***	-0.0003***	-0.0004***
		(0.00000)	(0.00000)	(0.00000)
College degree		0.604***	0.602***	0.604***
		(0.003)	(0.003)	(0.003)
Married		0.698***	0.699***	0.698***
		(0.003)	(0.003)	(0.003)
Has children		0.333***	0.334***	0.334***
		(0.003)	(0.003)	(0.003)
Unemployed		-1.231***	-1.230***	-1.231***
		(0.010)	(0.010)	(0.010)
Female		-0.129***	-0.129***	-0.129***
		(0.003)	(0.003)	(0.003)
Log PUMA home value		0.325***	0.325***	0.325***
		(0.003)	(0.003)	(0.003)
Veteran * black			0.244***	
			(0.012)	
Veteran * Hispanic			0.246***	
			(0.015)	

	(1)	(2)	(3)	(4)
Veteran * Asian			0.222***	
			(0.031)	
Veteran * other race			0.088***	
			(0.023)	
Active military * black				0.378***
				(0.057)
Active military * Hispanic				0.157***
				(0.053)
Active military * Asian				0.145
				(0.104)
Active military * other race				0.131
				(0.083)
Constant	10.658***	5.324***	5.345***	5.325***
	(0.012)	(0.043)	(0.043)	(0.043)
State fixed effects	Yes	Yes	Yes	Yes
Observations	1,205,451	1,205,451	1,205,451	1,205,451
R^2	0.032	0.176	0.183	0.183

Source: 2017 American Community Survey.
Notes: PUMA = public use microdata area. Standard errors are in parentheses. The dependent variable is the log of household income. All control variables shown in column 2 of table 2 are included. All regressions are weighted by household weights provided by the American Community Survey.
*** p <0.01.

Military Status and Homeownership by Race or Ethnicity

When we look at the interaction terms between veteran status and the race and ethnicity dummy variables, we find that military service is associated with higher income gains for households of color than for white households. First, we look at the interaction terms on military status. Figure 13 shows that veteran households earn 12 percent more than white nonmilitary households after including the controls. For black and Hispanic households, the difference is 37 percent, and for Asian households, the difference is 34 percent.

FIGURE 13

**Household Income Differences between Veteran
and Nonmilitary Households, by Race or Ethnicity**
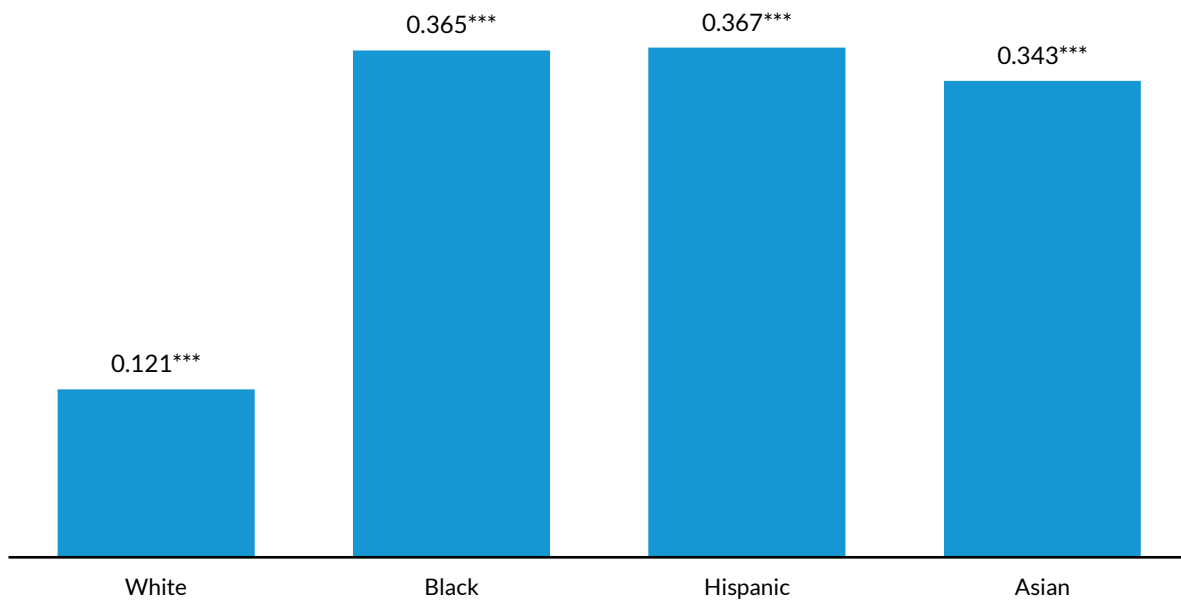
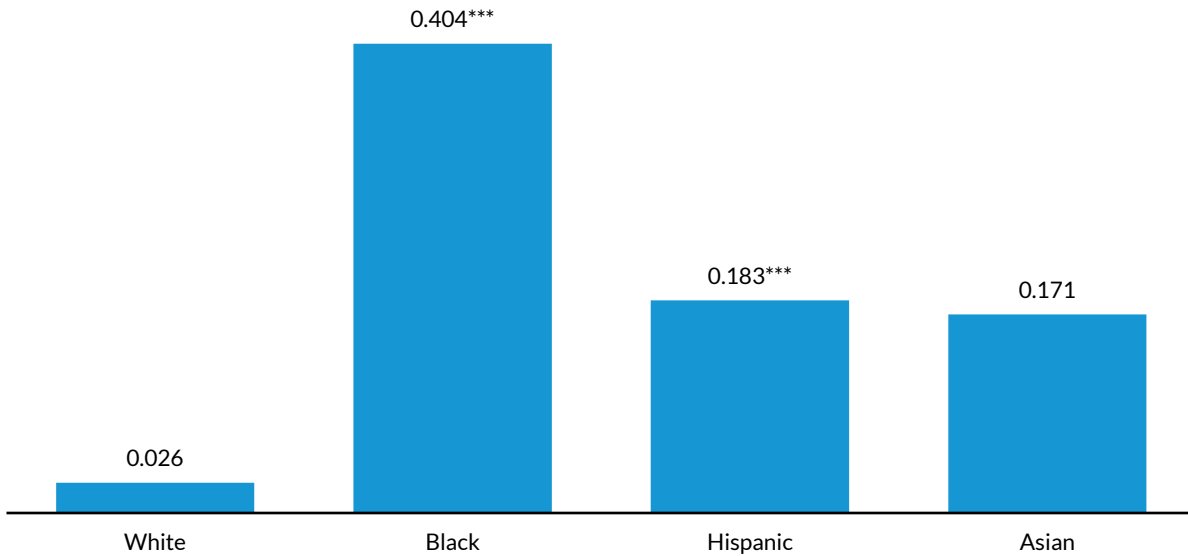
Source: 2017 American Community Survey.
Notes: The dependent variable is the log of household income. For black, Hispanic, and Asian households, the asterisks indicate whether the size of the coefficient is significantly different from the white coefficient The numbers are calculated from column 3 in table 3.
*** $p < 0.01$.

When we look at the same figure for active-duty servicemembers, we see that military service is associated with a large income increase for black military households. Black households with an active military member have household income that is 40 percent higher than for households without a military member. For Hispanic households, incomes are 18 percent higher for military households. For white and Asian households, there is no statistically significant difference.

FIGURE 14

Household Income Differences between Active-Duty Military and Nonmilitary Households, by Race or Ethnicity

Source: 2017 American Community Survey.
Notes: The dependent variable is the log of household income. For black, Hispanic, and Asian households, the asterisks indicate whether the size of the coefficient is significantly different from the white coefficient. The numbers are calculated from column 4 in table 3.
*** *p* < 0.01.

This shows how military service closes the income gap between white households and black and Hispanic households. Holding other factors constant, the log income gap between white and black nonmilitary households is 39 percent versus 15 percent for white and black veterans and virtually no difference for active-duty servicememebers. Similarly, the log income gap between nonmilitary white and Hispanic households is 32 percent versus 7 percent for white and Hispanic veterans and 14 percent for active-duty servicemembers.

Testing the Impacts of Military Bases

A large military base can be a local anchor to enhance homeownership opportunities because it provides stable employment. Also, veterans and active-duty servicemembers living close to the base have easy access to information about VA loans, and this advantage could help more veterans and active-duty servicemembers apply for VA loans to obtain homeownership. This information could be more beneficial to households of color; they are less likely to receive information from close family members because these family members are also less likely to be homeowners.

To test the relationship between large military bases and homeownership for both military and nonmilitary personnel, we isolated military bases that are large employers in their respective areas. A map of the bases is shown below (figure 15). These areas contain a disproportionate concentration of military personnel. For example, Fayetteville, North Carolina, is home to Fort Bragg and the Pope Air Force Base, which combined to employ nearly 30,000 servicemembers and civilians in 2009. Nearly 17 percent of Fayetteville's labor force was employed by the military in 2017. Areas with military bases represent a disproportionate amount of VA originations, and VA originations made up 8.5 percent of all originations in 2018.

FIGURE 15
Large Military Bases
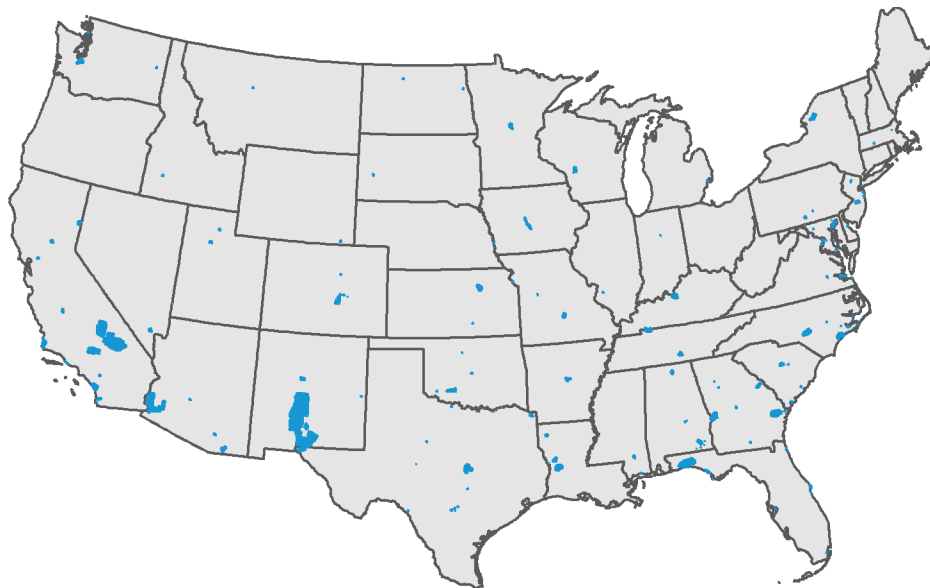
Sources: The Census Bureau and the Defense Data Manpower Center.

TABLE 4

Top Metropolitan Statistical Areas by VA Lending Share

Core-based statistical area	Base distance	Total loans	VA loans	VA share of loans	Military labor force share
Fayetteville, NC	Contains base	6,173	3,700	59.94%	16.61%
Clarksville, TN-KY	Contains base	7,015	3,564	50.81%	12.85%
Virginia Beach-Norfolk-Newport News, VA-NC	Contains base	32,999	12,921	39.16%	9.17%
Pensacola-Ferry Pass-Brent, FL	Contains base	10,648	3,891	36.54%	4.31%
Colorado Springs, CO	Contains base	23,125	8,265	35.74%	7.94%
Augusta-Richmond County, GA-SC	Contains base	10,720	3,334	31.10%	4.47%
Dover, DE	Contains base	3,377	831	24.61%	3.04%
Gulfport-Biloxi-Pascagoula, MS	Contains base	5,998	1,466	24.44%	4.08%
San Antonio-New Braunfels, TX	Contains base	43,731	9,471	21.66%	1.60%
Montgomery, AL	Contains base	5,486	1,144	20.85%	1.76%

**Sources**: 2018 Home Mortgage Disclosure Act data and 2017 American Community Survey data.

Notes: VA = US Department of Veterans Affairs. Includes only single-family loans.

Regression Analysis: Impacts of Military Bases on Homeownership

Figure 16 presents the relationship between the presence of a military base and homeownership from the regression analysis presented in appendix table A.1. Once age, sex, and other socioeconomic variables are included, as well as military status, we find that the likelihood of owning a home in a PUMA with a military base is only 0.01 percentage points higher than in PUMAs without bases, suggesting the impact is not large.[10] Military status itself has a greater effect on homeownership than living close to a base. But the presence of a base has a stronger association with the homeownership rates of area black and Hispanic households. The likelihood of owning a home is 2.7 percentage points higher for black households living in PUMAs with bases compared with black households living in PUMAs without bases. For Hispanic housholds, the likelihood is 5.2 percentage points higher. Appendix table A.1 presents the full set of regression results.

FIGURE 16

Presence of Military Base and Homeownership, by Race or Ethnicity
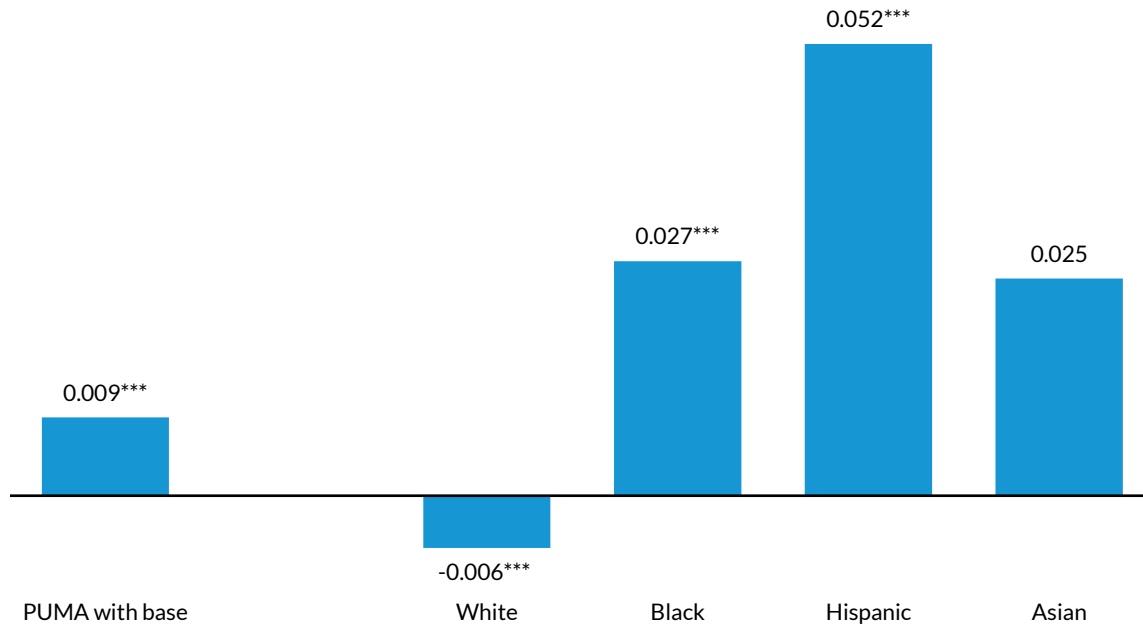
Source: 2017 American Community Survey.

Notes: PUMA = public use microdata area. The dependent variable is homeownership (1 = homeowners, 0 = otherwise). For black, Hispanic, and Asian households, the asterisks indicate whether the size of the coefficient is significantly different from the white coefficient. The numbers are calculated from appendix table A.1.

*** $p < 0.01$.

Regression Analysis: Impacts of Military Bases on Income

Figure 17 presents the relationship between large military bases and household income calculated from the regression results in appendix table A.2. Once we control for military status and demographic and socioeconomic variables, we find no relationship between household income and the presence of a military base. But there are again differences by race or ethnicity. White households who live in PUMAs with bases earn 2.9 percent less than white households who live in PUMAs without bases. Black, Hispanic, and Asian households who live in PUMAs with bases have higher incomes than households who do not (3.4 percent for black households, 4.3 percent for Hispanic households, and 12 percent for Asian households). In short, the presence of a military base has a positive relationship with household income for black, Hispanic, and Asian households, suggesting that the presence of a military base may

provide broader and more stable job opportunities for people of color who may otherwise have limited options. As in the case of the homeownership results, living in an area with a base has a smaller impact on household income than military status. Appendix table A.2 presents the full regression results.

FIGURE 17

Presence of Military Base and Household Income, by Race or Ethnicity
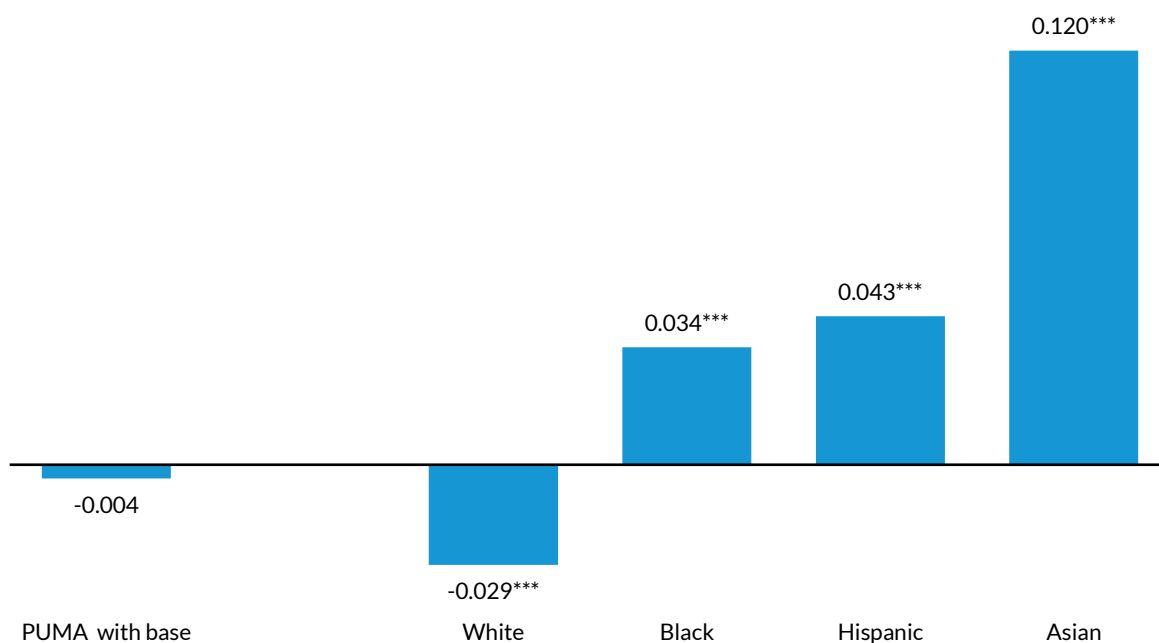
Source: 2017 American Community Survey.
Notes: PUMA = public use microdata area. The dependent variable is the log of household income. For black, Hispanic, and Asian households, the asterisks indicate whether the size of the coefficient is significantly different from the white coefficient. The numbers are calculated from appendix table A.2.
*** $p < 0.01$.

Conclusion

The findings in this report indicate that military status reduces racial and ethnic disparities; veteran or active-duty status decreases the racial and ethnic homeownership and income gaps between white households and households of color. After controlling for military status, the presence of a local military base does contribute, albeit more marginally, to increased homeownership and income among black, Hispanic, and Asian households, veterans and nonveterans alike. It makes little difference for white households.

In our earlier paper (Choi et al. 2019), we observed that the three cities with the smallest white-black homeownership gaps had military bases. This was no accident. Veteran status significantly increases the homeownership rate for black, Hispanic, and Asian households. The presence of a military base adds to this effect. This was the first in what we hope will be a robust body of research in this area. We have shown that military service has a positive effect on homeownership and household income for minority groups but makes less of a difference for white households. But we do not know why. Is it stable income? Is it access to low–down payment VA mortgages, which are more valuable to minority households than to white households (because minorities often lack parental wealth)? Is it greater financial literacy? Is it access to adjacent services such as health care? Or is it all of the above?

Similarly, we know living close to a military base has a positive effect on homeownership, particularly for minorities. Moreover, living close to a military base has a positive effect on household income for minorities. But we do not know why. Is it simply access to a large anchor institution that provides stable jobs and income, or is there something more? Can a private employer provide these same benefits?

The trends we explore here may be applicable beyond the military, and a better understanding of the mechanisms through which the playing field may be leveled will yield important insights for employers and policymakers alike. Further exploring the benefits the military provides may give other anchor institutions ideas about what policies and programs boost employees' financial health. For instance, we know VA loans contribute to the homeownership increases we see among veterans. Although most employers do not have employee loan programs, providing programs such as employer-assisted down payment assistance or on-site homebuyer education could partially emulate the effects we see among military members. Similarly, large employers could increase training programs to help employees gain skills to attain higher incomes and provide incentives to increase the tenure of employment. Employers could help employees build wealth and ensure financial stability by providing

benefits such as insurance, disability insurance, and retirement savings, an area that needs further exploration.

Appendix

Homeownership Regression with Military Base

	(1)	(2)	(3)
Contains base	0.031***	0.009***	-0.006***
	-0.002	-0.002	-0.002
Miles to base	0.000***	0.000***	0.000***
	0.000	0.000	0.000
Veteran	0.122***	0.012***	0.012***
	-0.001	-0.001	-0.001
Active military	-0.160***	-0.106***	-0.105***
	-0.006	-0.005	-0.005
Black	-0.295***	-0.210***	-0.214***
	-0.001	-0.001	-0.001
Hispanic	-0.231***	-0.145***	-0.151***
	-0.001	-0.001	-0.001
Asian	0.004	-0.003	-0.006**
	-0.002	-0.002	-0.002
Other	-0.153***	-0.100***	-0.101***
	-0.002	-0.002	-0.002
Age		0.027***	0.027***
		(0.000)	(0.000)
Age^2		-0.000***	-0.000***
		(0.000)	(0.000)
Female		0.006***	0.006***
		(0.001)	(0.001)
College		0.089***	0.089***
		(0.001)	(0.001)
Married		0.192***	0.192***
		(0.001)	(0.001)
Has children		0.055***	0.055***
		(0.001)	(0.001)
Log household income		0.044***	0.043***
		(0.000)	(0.000)
Unemployed		-0.038***	-0.038***
		(0.009)	(0.009)
Log PUMA home price		-0.076***	-0.076***
		(0.001)	(0.001)
Military labor force share		-0.001	-0.039
		(0.050)	(0.050)
Contains base * black			0.033***
			-0.004
Contains base * Hispanic			0.058***
			-0.004
Contains base * Asian			0.031***
			-0.008
Contains base * other race			0.015**
			-0.007
Constant	0.690***	0.155***	0.154***
	-0.001	-0.012	-0.012

	(1)	(2)	(3)
State fixed effects	Yes	Yes	Yes
Observations	1,205,451	1,205,451	1,205,451
R^2	0.074	0.250	0.250

Source: 2017 American Community Survey.

Notes: PUMA = public use microdata area. Standard errors are in parentheses. The dependent variable is homeownership (1 = homeowners, 0 = otherwise). All control variables shown in column 2 of table 2 are included. All regressions are weighted by household weights provided by the American Community Survey.

*** $p < 0.01$; ** $p < 0.05$.

TABLE A.2

Household Income Regression with Military Base

	(1)	(2)	(3)
Contains base	-0.175***	-0.004	-0.029***
	-0.005	-0.005	-0.006
Miles to base	-0.002***	-0.000***	-0.000***
	0.000	0.000	0.000
Veteran	0.205***	0.175***	0.175***
	-0.004	-0.004	-0.004
Active military	0.444***	0.148***	0.149***
	-0.02	-0.018	-0.018
Black	-0.655***	-0.355***	-0.362***
	-0.005	-0.004	-0.005
Hispanic	-0.322***	-0.306***	-0.314***
	-0.004	-0.004	-0.005
Asian	0.241***	-0.249***	-0.262***
	-0.009	-0.008	-0.009
Other	-0.150***	-0.116***	-0.116***
	-0.008	-0.007	-0.008
Age		0.035***	0.035***
		(0.001)	(0.001)
Age^2		-0.000***	-0.000***
		(0.000)	(0.000)
Female		-0.128***	-0.128***
		(0.003)	(0.003)
College		0.611***	0.610***
		(0.003)	(0.003)
Married		0.709***	0.709***
		(0.003)	(0.003)
Has children		0.327***	0.327***
		(0.003)	(0.003)
Unemployed		-0.247***	-0.247***
		(0.034)	(0.034)
Log PUMA home price		0.347***	0.348***
		(0.003)	(0.003)
Military labor force share		-0.293	-0.377**
		(0.181)	(0.181)
Contains base * black			0.063***
			-0.013
Contains base * Hispanic			0.072***
			-0.013

	(1)	(2)	(3)
Contains base * Asian			0.149***
			-0.028
Contains base * other race			-0.002
			-0.023
Constant	11.005***	5.208***	5.210***
	-0.003	-0.044	-0.044
State fixed effects	Yes	Yes	Yes
Observations	1,205,451	1,205,451	1,205,451
R^2	0.025	0.184	0.184

Source: 2017 American Community Survey.

Notes: PUMA = public use microdata area. Standard errors are in parentheses. The dependent variable is the log of household income. All control variables shown in column 2 of table 3 are included. All regressions are weighted by household weights provided by the American Community Survey.

*** $p < 0.01$; ** $p < 0.05$.

Notes

1   Alanna McCargo and Sarah Strochak, "Mapping the Black Homeownership Gap," *Urban Wire* (blog), Urban Institute, February 26, 2018, https://www.urban.org/urban-wire/mapping-black-homeownership-gap.

2   Judy Ann Loveless-Morris, "Black-White Wealth Accumulation: Does Veteran Status Matter?" (PhD diss., University of Washington, 2013).

3   Kerry Spitzer and Lauren Lambie-Hanson, "Institutions and Geographic Concentration in VA Mortgage Lending," *Housing Perspectives* (blog), Joint Center for Housing Studies of Harvard University, November 6, 2019, https://www.jchs.harvard.edu/blog/institutions-and-geographic-concentration-in-va-mortgage-lending/.

4   Studies, including Rothstein (2017), point out that the GI program did not equally benefit veterans. Black veterans were often excluded, as the VA adopted all the Federal Housing Administration's racial exclusion practices when it began to insure mortgages for returning veterans. Our study uses 2017 data, so the blatant discrimination in the housing market will have a lesser impact on our results, though the vestiges remain.

5   Loveless-Morris, "Black-White Wealth Accumulation."

6   Spitzer and Lambie-Hanson, "Institutions and Geographic Concentration."

7   Spitzer and Lambie-Hanson, "Institutions and Geographic Concentration."

8   The Panel Study of Income Dynamics does not separate veterans and active-duty servicemembers.

9   We use this definition because having a veteran in a household provides access to VA loans. For demographic and socioeconomic characteristics, we use the value of household heads. For example, age is the age of the household head, who may or may not be a veteran, as we define veteran households as households with any veteran members.

10 The distance-to-the-military-base variable has a positive sign, but the size of the coefficient is zero. This shows that the presence of a base does not influence homeownership rates in nearby localities.

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