



Homeownership, Military Service, and the Importance of VA Mortgages

#LiveAtUrban

Institutions and Geographic Concentration in VA Mortgage Lending

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*This work reflects the views of the authors and not necessarily those of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.

VA Home Loan Program Basics

- Created in 1944 through the G.I. Bill.
- Loans typically require no down payment and no PMI.
 - VA funding fee is required. Amount depends on the size of the downpayment, whether the borrower is taking cash out, type of military service, and other factors.
 - Fees commonly range from 1.25 to 3.3 percent of the loan amount; can be waived for certain veterans with service-related disabilities.
- Benefit for veterans and active-duty service members, as well as some National Guard and Reserve members and surviving spouses
 - Don't have to be a first-time homebuyer and can reuse the benefit



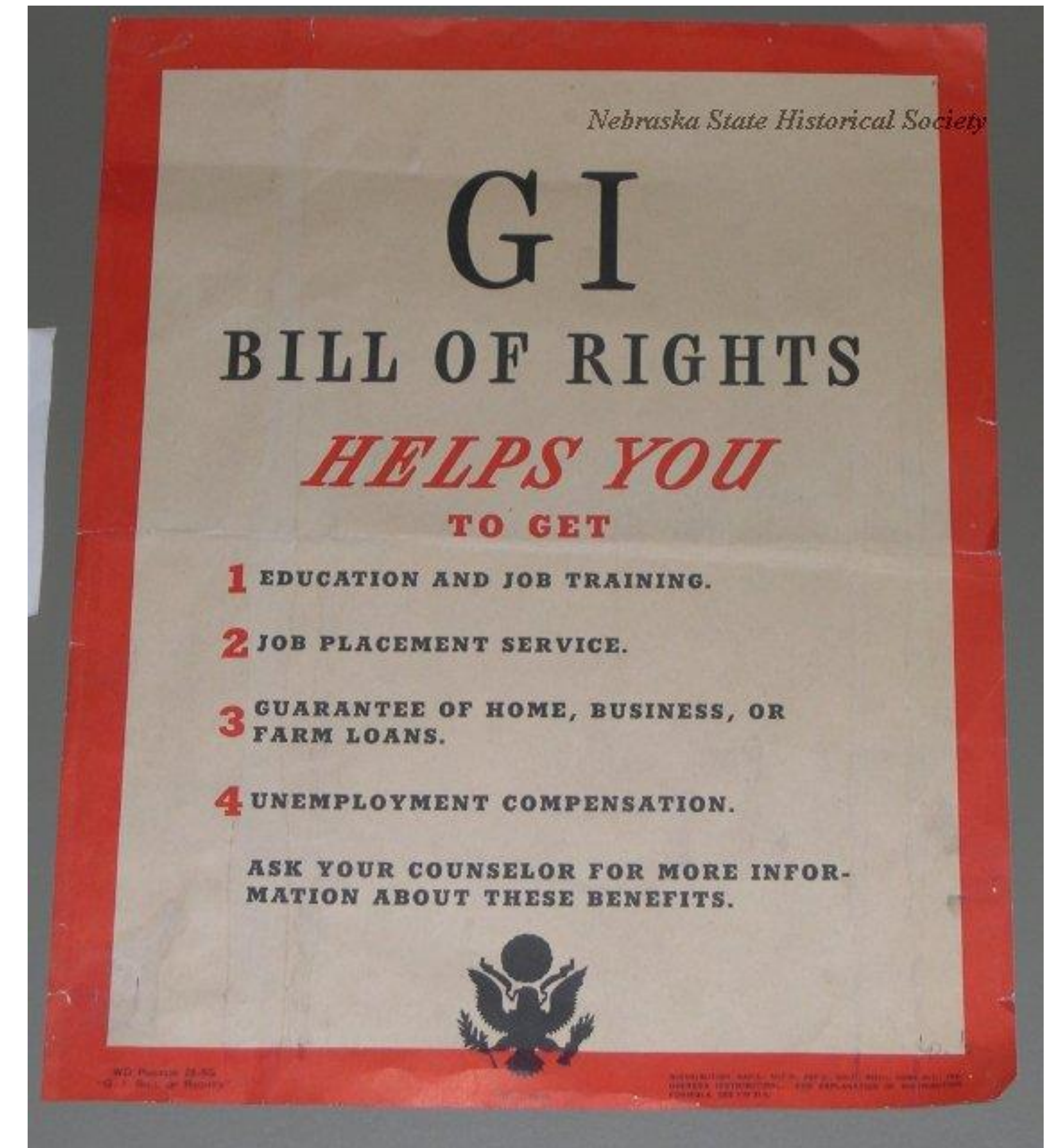
Source: National Archives,
via *Military Times*



Source: Franklin D. Roosevelt Presidential Library and Museum

Motivation

- According to the 2010 National Survey of Veterans:
 - 66% of veterans who had ever owned a home used the VA Home Loan Guaranty Program.
 - Half of those used it because of the no-down-payment option.
 - Of those who owned a home, but did *not* use the program, **one-third** responded “**I did not know about the program.**”
- Proposition: proximity to Veteran Service Organizations, VA facilities, and military sites may increase use of the VA program by increasing awareness of the program.

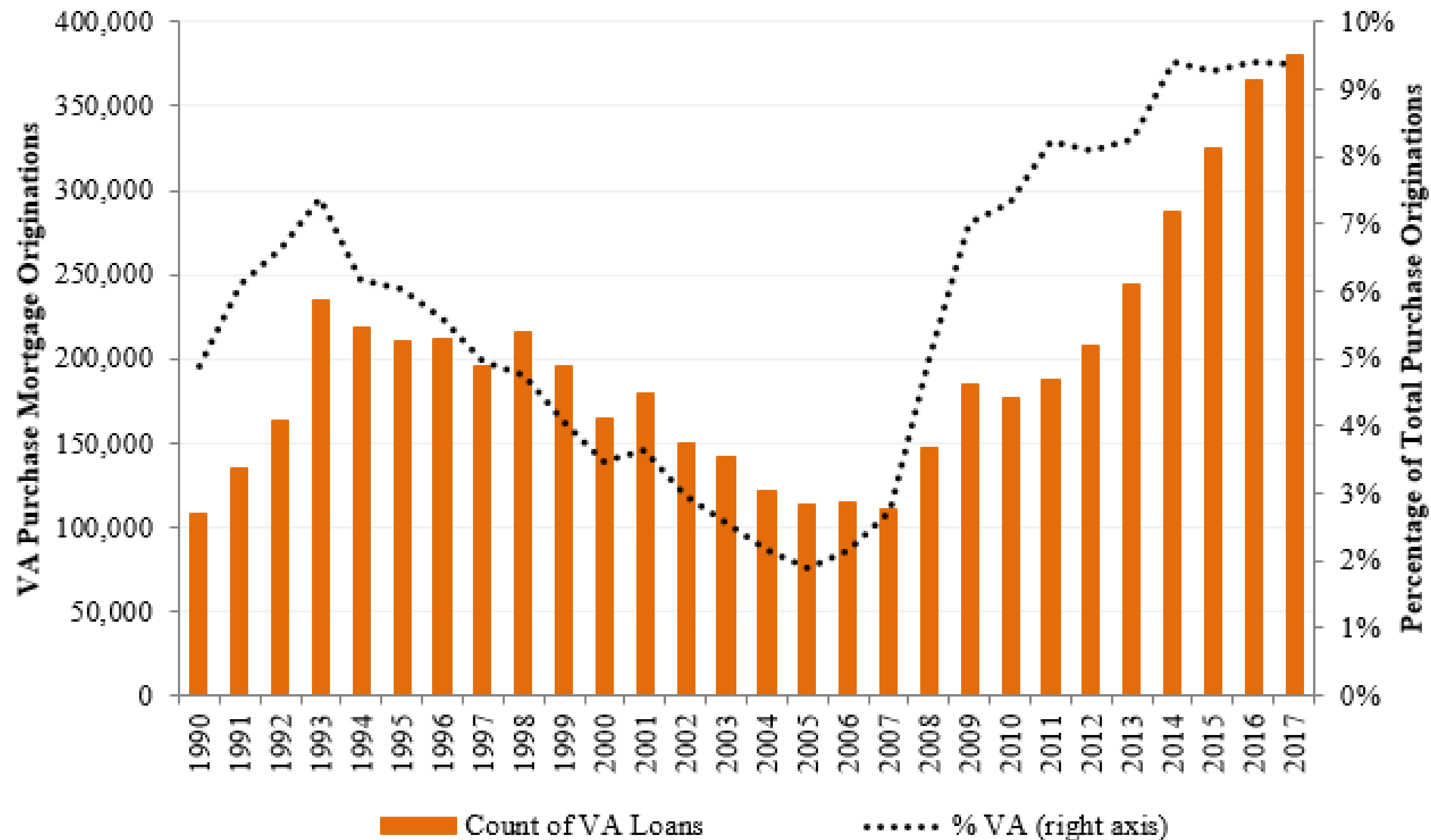


Source: Nebraska Historical Society

Prior Research

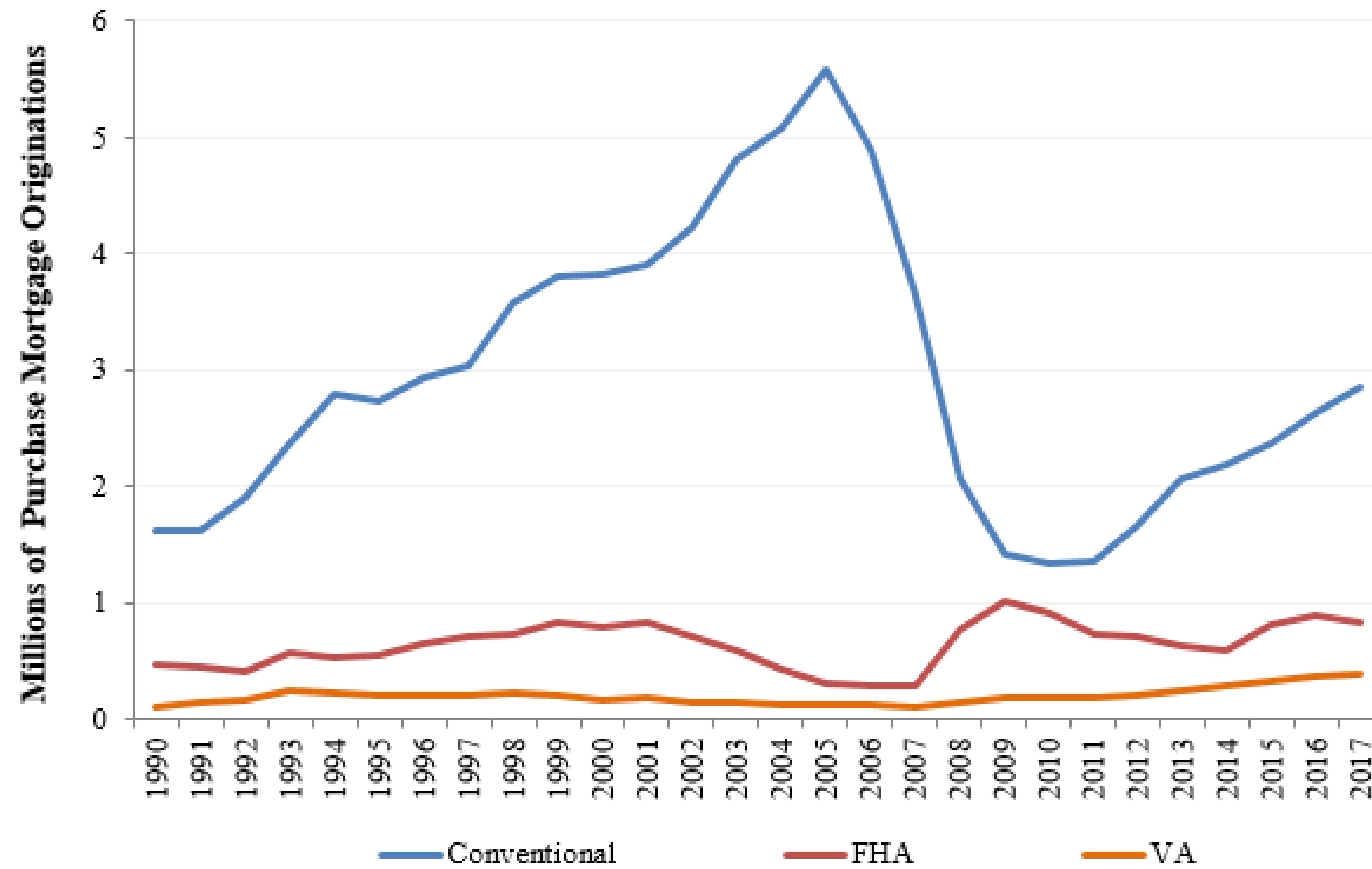
- VA loans' contribution to suburbanization has been debated by historians (Altschluer & Blumin 2009; Bennett 1996; Humes 2006)
- Increased homeownership rates by decreasing age of first home purchase (Fetter 2011)
- Increased housing prices for non-VA borrowers by removing liquidity constraints (Vigdor 2006)
- Veterans live in more integrated neighborhoods (Fischer & Rugh 2018)

VA loans have increased dramatically in recent years



Source: Home Mortgage Disclosure Act data. *Notes:* Only purchase mortgages are included, with loans limited to first liens beginning in 2004, when lien information was first reported in HMDA data. Farm Service Agency and Rural Housing Service loans are excluded from the analysis. FHA = Federal Housing Administration. VA = U.S. Department of Veterans Affairs.

Volume of purchase mortgage originations: 1990 –2017

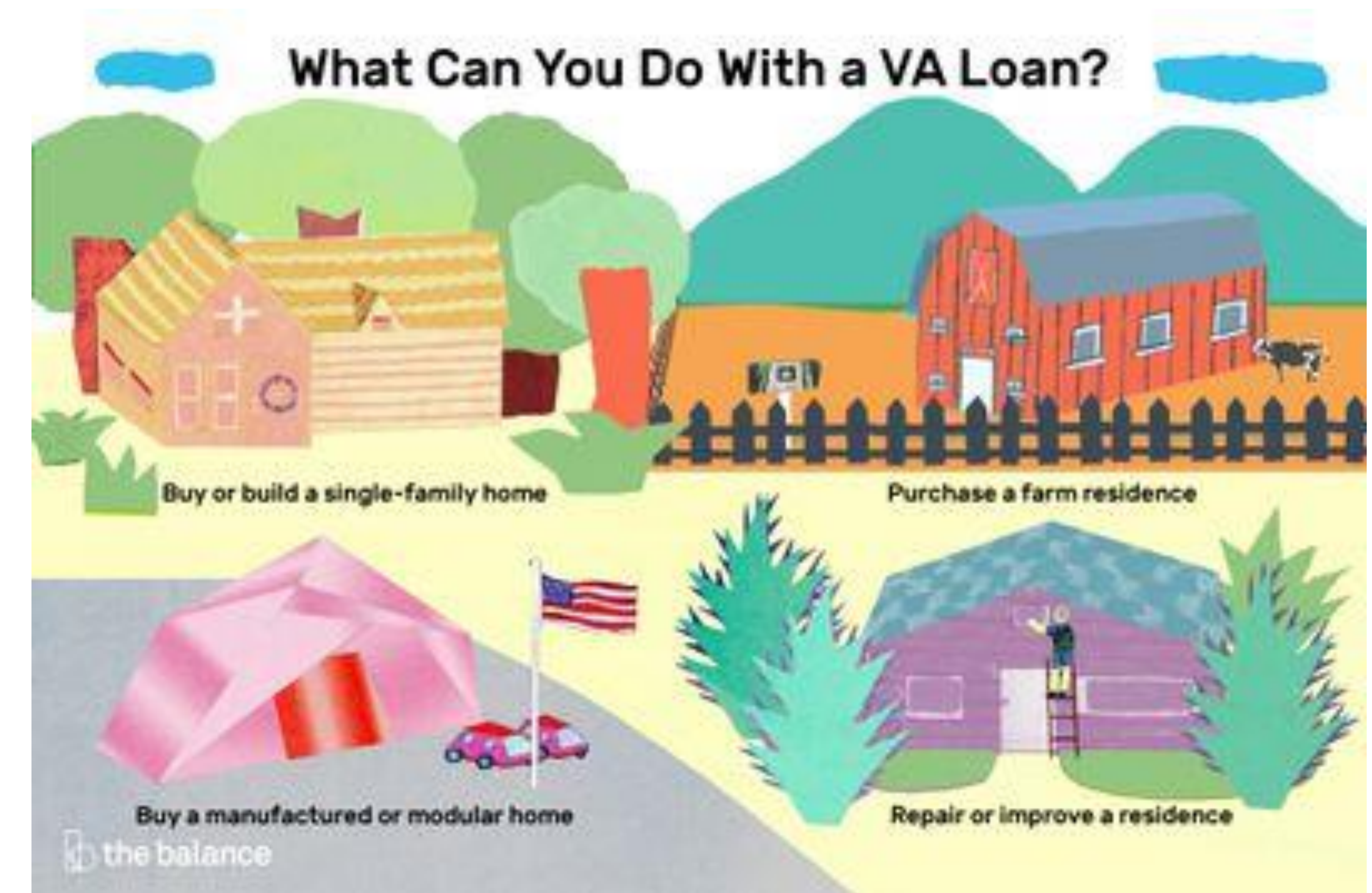


Source: Home Mortgage Disclosure Act data. *Notes:* Only purchase mortgages are included, with loans limited to first liens beginning in 2004, when lien information was first reported in HMDA data. FHA = Federal Housing Administration. VA = U.S. Department of Veterans Affairs.

Characteristics of Recent VA Loans

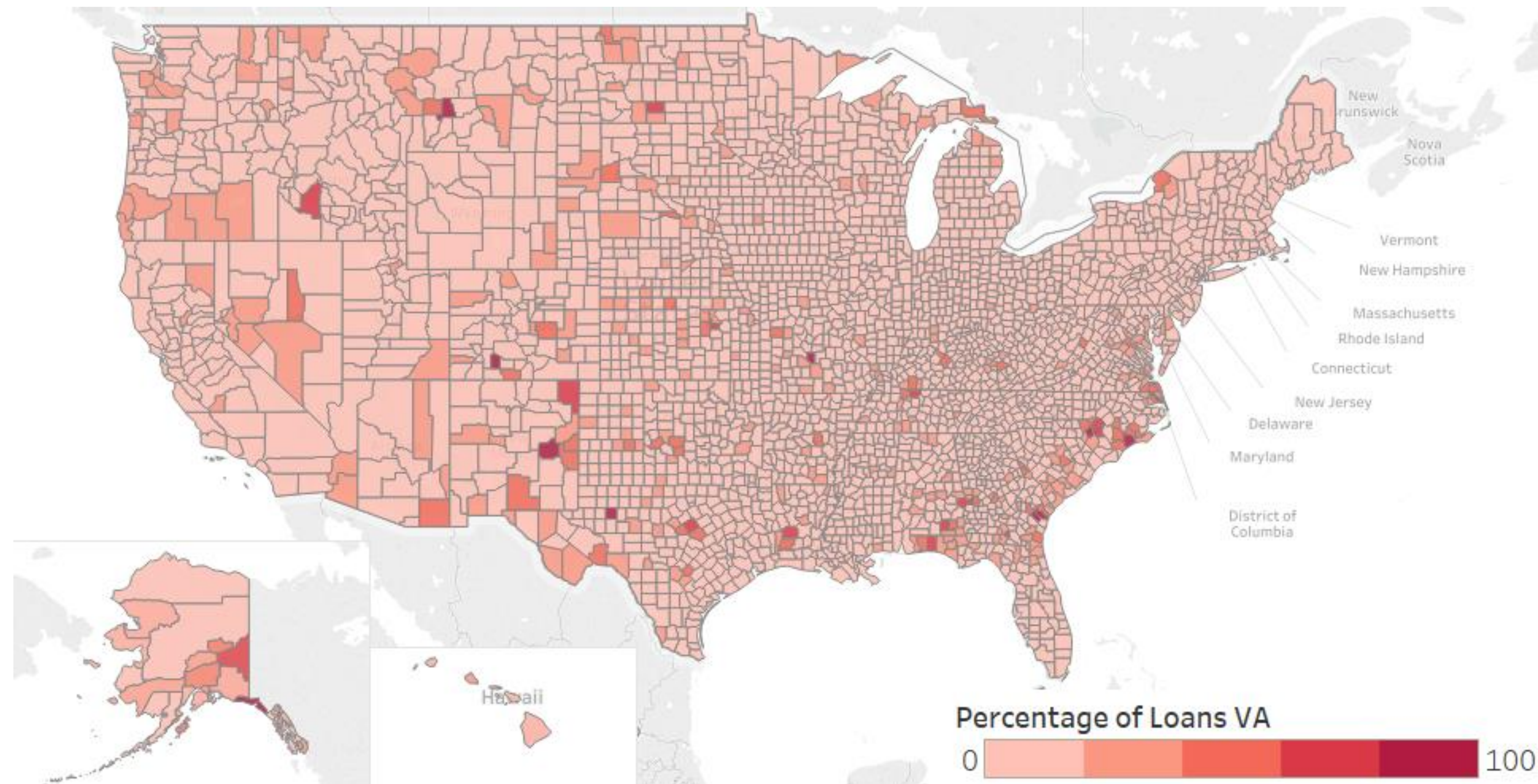
- 740,389 VA mortgage loans were originated in FY 2017:
 - 380,437 purchase or construction (51%)
 - 155,620 were made to first-time homebuyers (41% of purchase/construction loans)
 - 190,914 interest rate refinance (26%)
 - 169,038 cash-out or other refinance (23%)

Source: FY 2017 Annual Benefits Report, U.S. Department of Veterans Affairs.



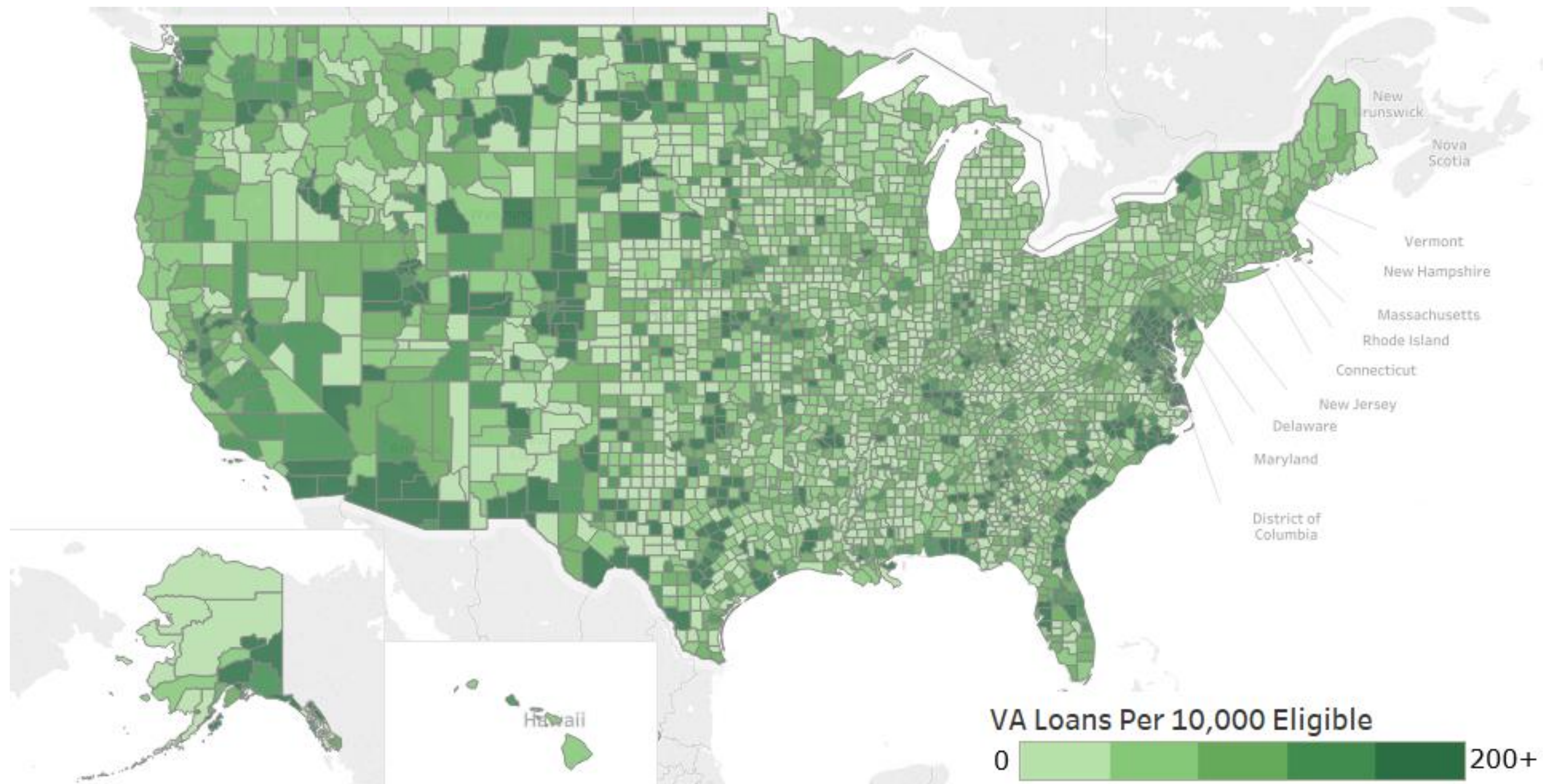
Source: Luyi Wang, thebalance.com

VA Loans Originated, as a Percentage of All Purchase Mortgages (2011)



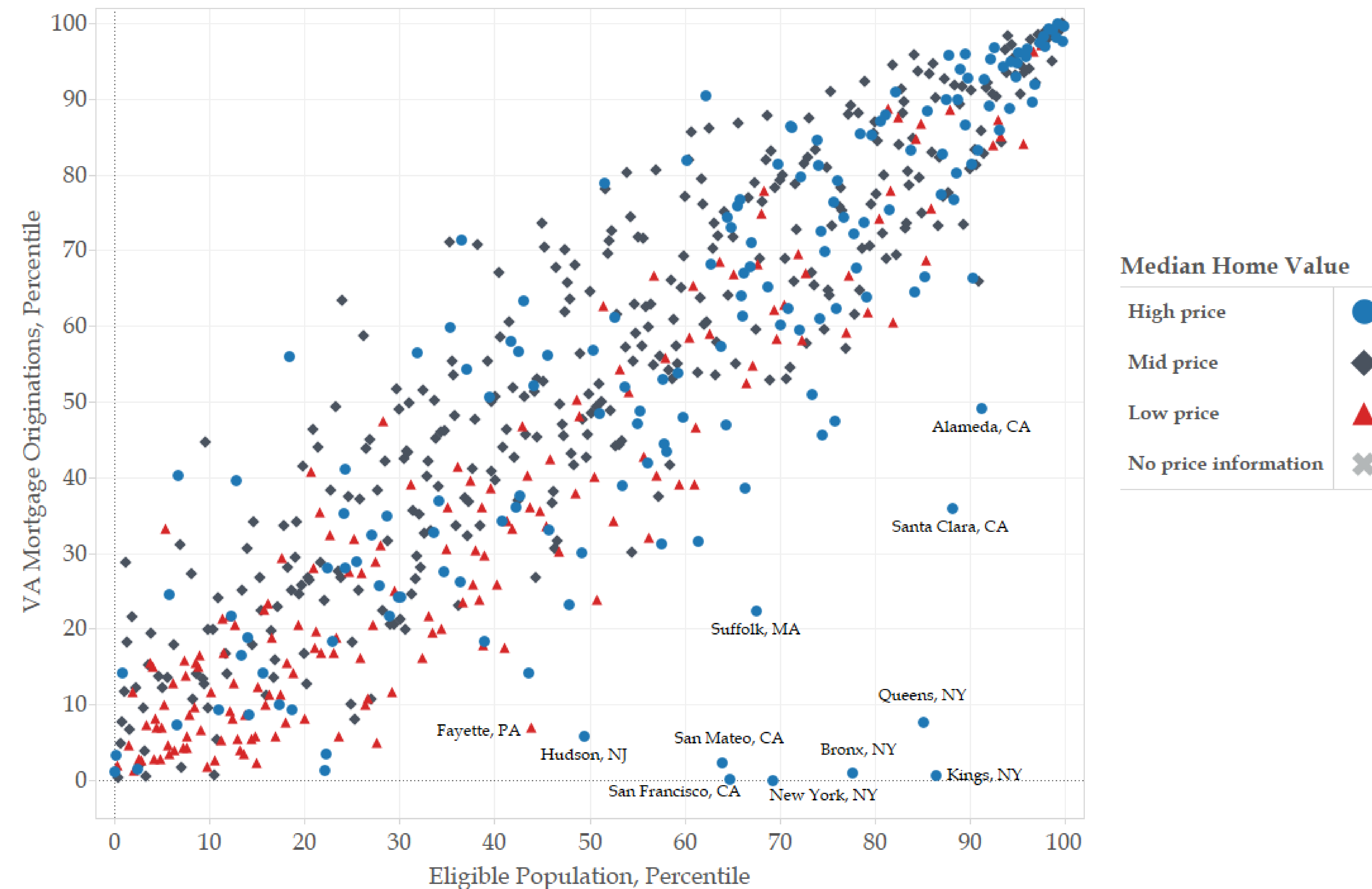
Source: Home Mortgage Disclosure Act data. *Notes:* First-lien purchase mortgages only are included.

VA Loans Originated per 10,000 Eligible Residents (2011)



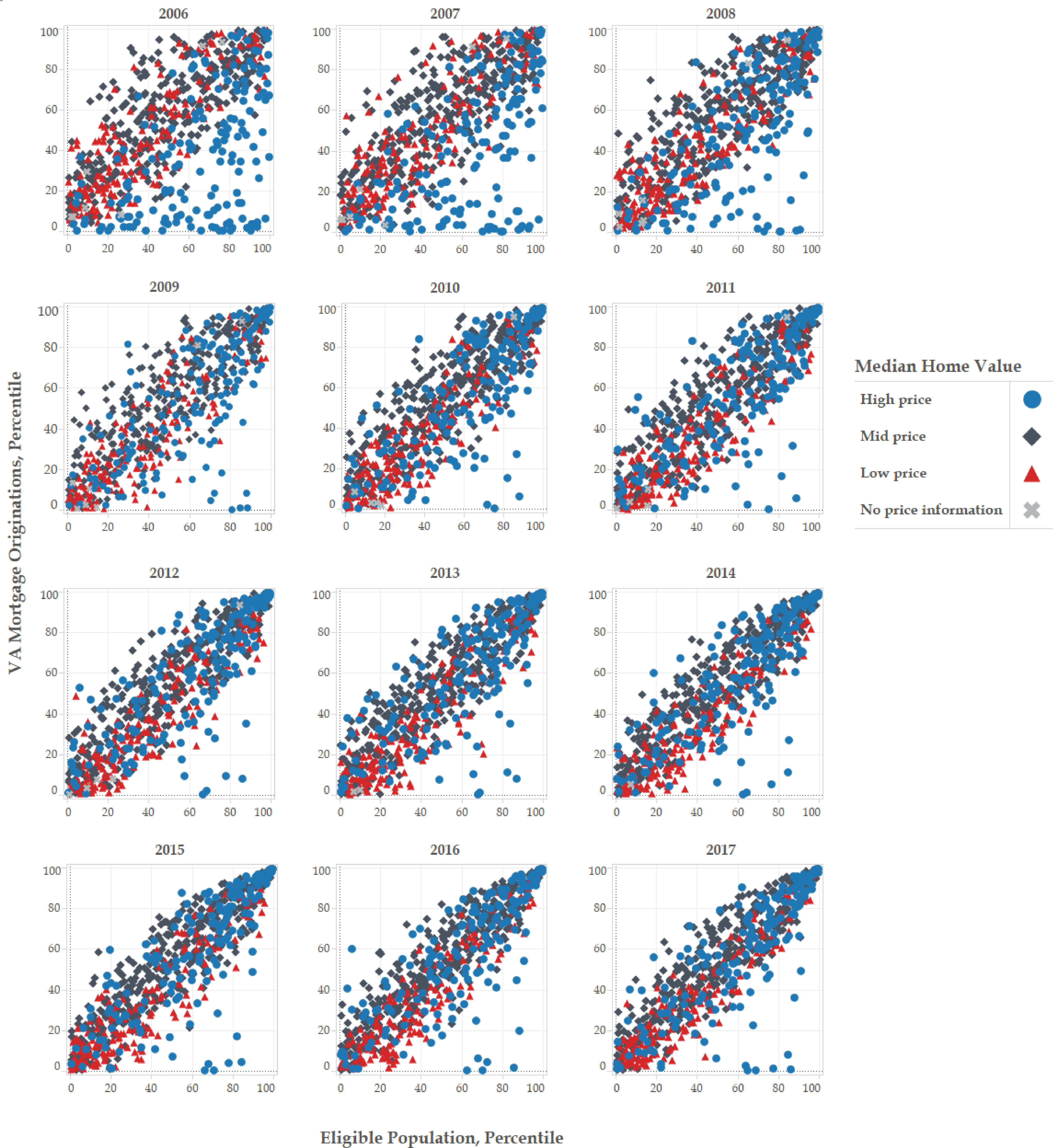
Sources: Home Mortgage Disclosure Act and U.S. Census Bureau data. *Notes:* “Eligible” population includes veterans aged 18–64 and active-duty servicemembers, according to the 2011 5-year American Community Survey. First-lien purchase mortgages only are included.

Counties ranked by eligible population and volume of VA loans originations (2017)



Sources: Home Mortgage Disclosure Act, U.S. Census Bureau, and Zillow data. *Notes:* Counties are ranked by eligible population (number of VA mortgage originations) and assigned a percentile value which is displayed along the x (y) axis. First-lien purchase mortgages only are included.

Since the onset of the financial crisis, less dispersion in use of the VA program



Sources: Home Mortgage Disclosure Act, U.S. Census Bureau, and Zillow data. Notes: Counties are ranked by eligible population (number of VA mortgage originations) and assigned a percentile value which is displayed along the x (y) axis. First-lien purchase mortgages only are included.

Data Sources

- Home Mortgage Disclosure Act data
 - First-lien, purchase mortgage originations
- 1-Year American Community Survey
- Veteran Service Organizations
 - Addresses or ZIP codes for American Legion, VFW, MOAA, and AMVETS posts. Geocoded and assigned to county.
- Department of Defense
 - Shapefile of military installations, bases, and ranges
- Department of Veterans Affairs
 - Shapefile of all VA facilities, we include: hospitals, clinics, vet centers, and cemeteries
- Zillow
 - County-level house price index
 - For more information on how the Zillow index is calculated or to obtain the data, visit <https://www.zillow.com/research/data/>. Data acquired from this site on December 19, 2018 using the market segment “all homes” for all available counties. Aggregated data is made freely available by Zillow for non-commercial use.

Sample

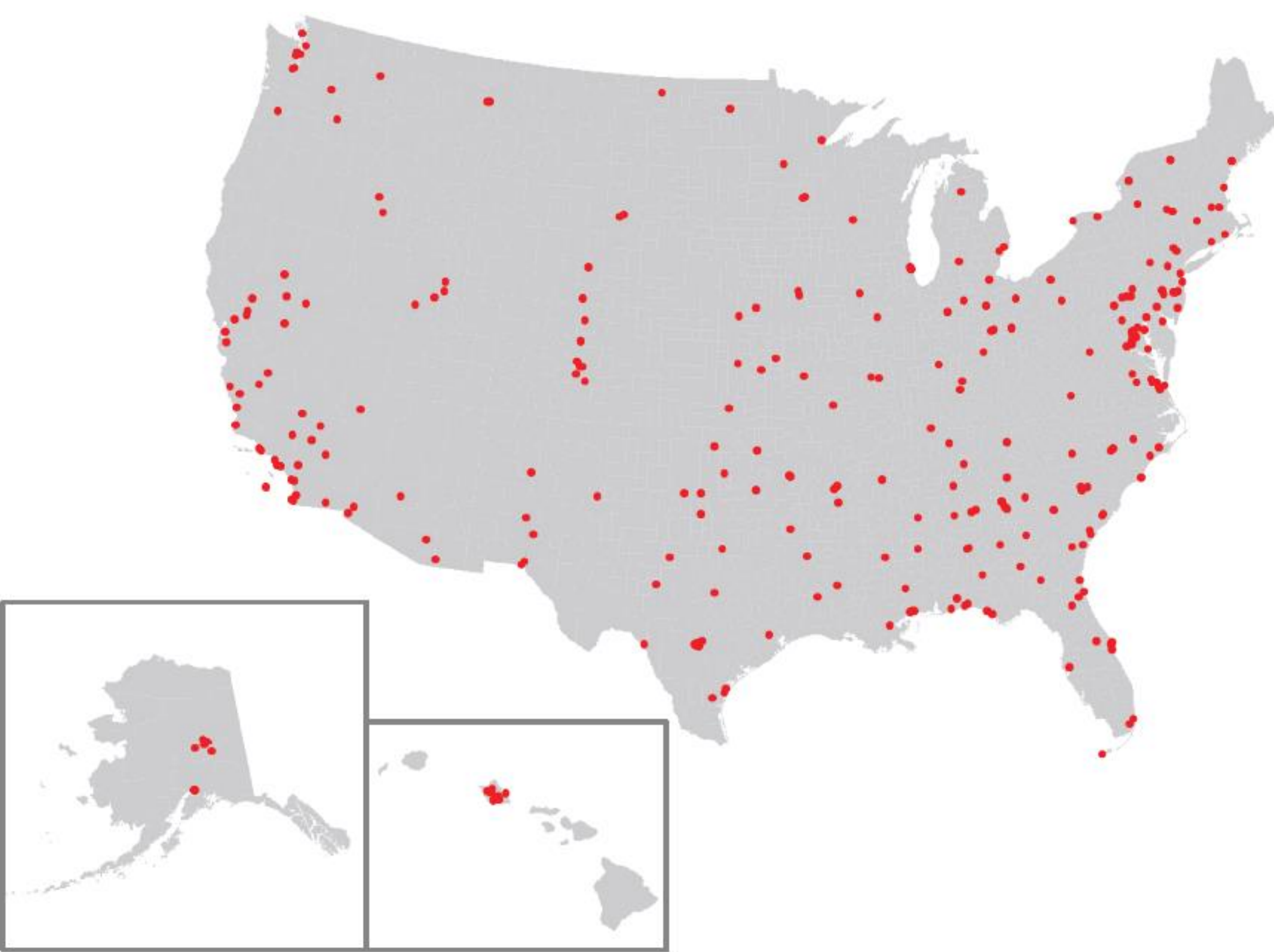
- Panel data set of counties
- 2006 -2017
- Some analysis restricted to counties in the 1-Year ACS all years and where Zillow house price data was available (657 counties in final sample)

What role does proximity to institutions play?

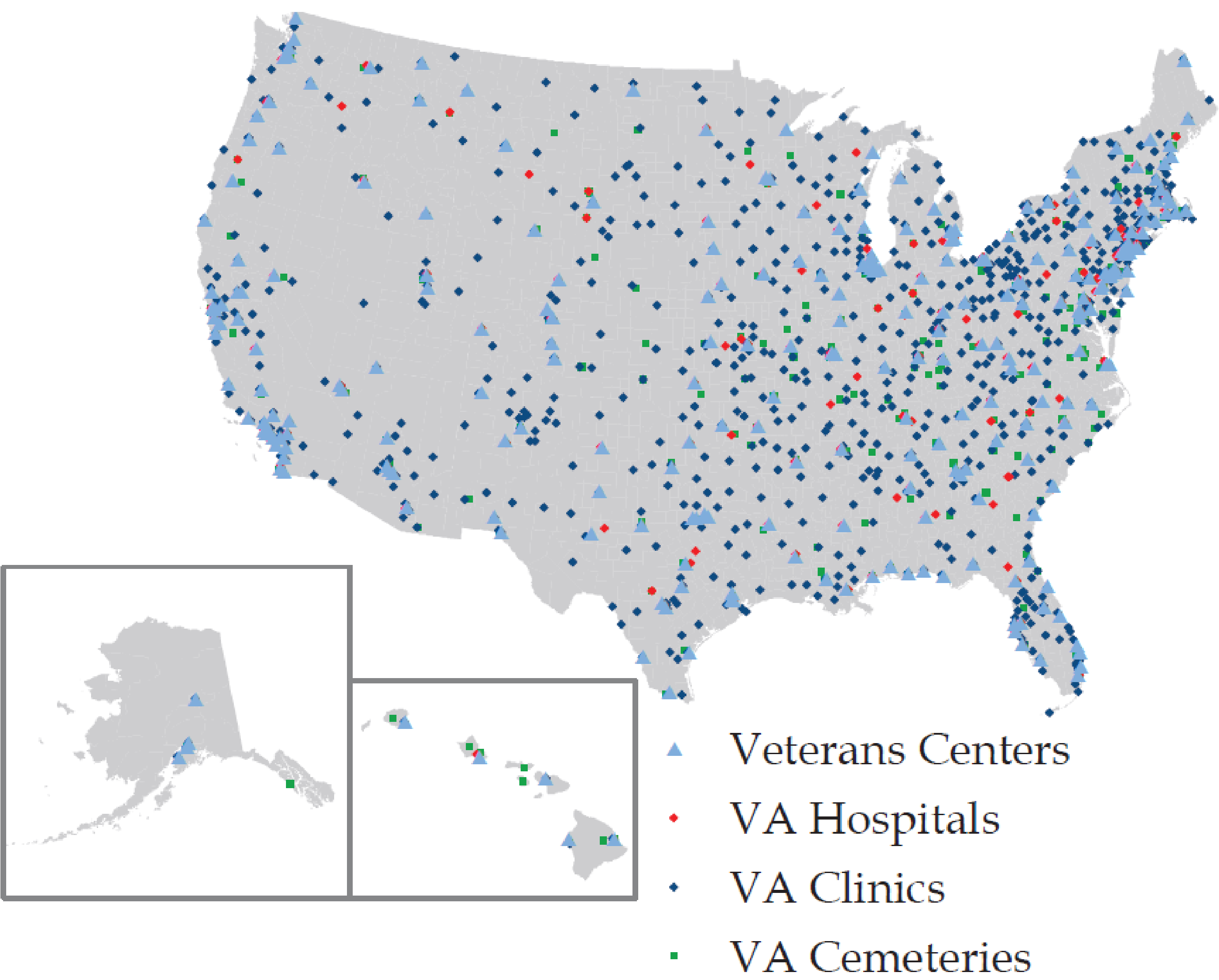
	Mean	Median	SD
Distance in Miles to Nearest...			
VA Hospital	48	33	102
VA Clinic	18	14	14
Veterans' Center	27	23	21
VA Cemetery	42	35	33
Military Base or Other Major Installation	28	20	34
% With Bases or Installations in County	38		
# VSO Posts Per 1,000 sq Miles	34	17	68

Sources: Authors’ analysis of data from the U.S. Department of Defense, American Legion, AMVETS, Military Officers Association of America, and Veterans of Foreign Wars (VFW). Notes: Counties are included here if they were included in the 1-year American Community Surveys from 2006–2017 and had Zillow house price data for each year 2006–2017 (including backward-looking measures of house price change).

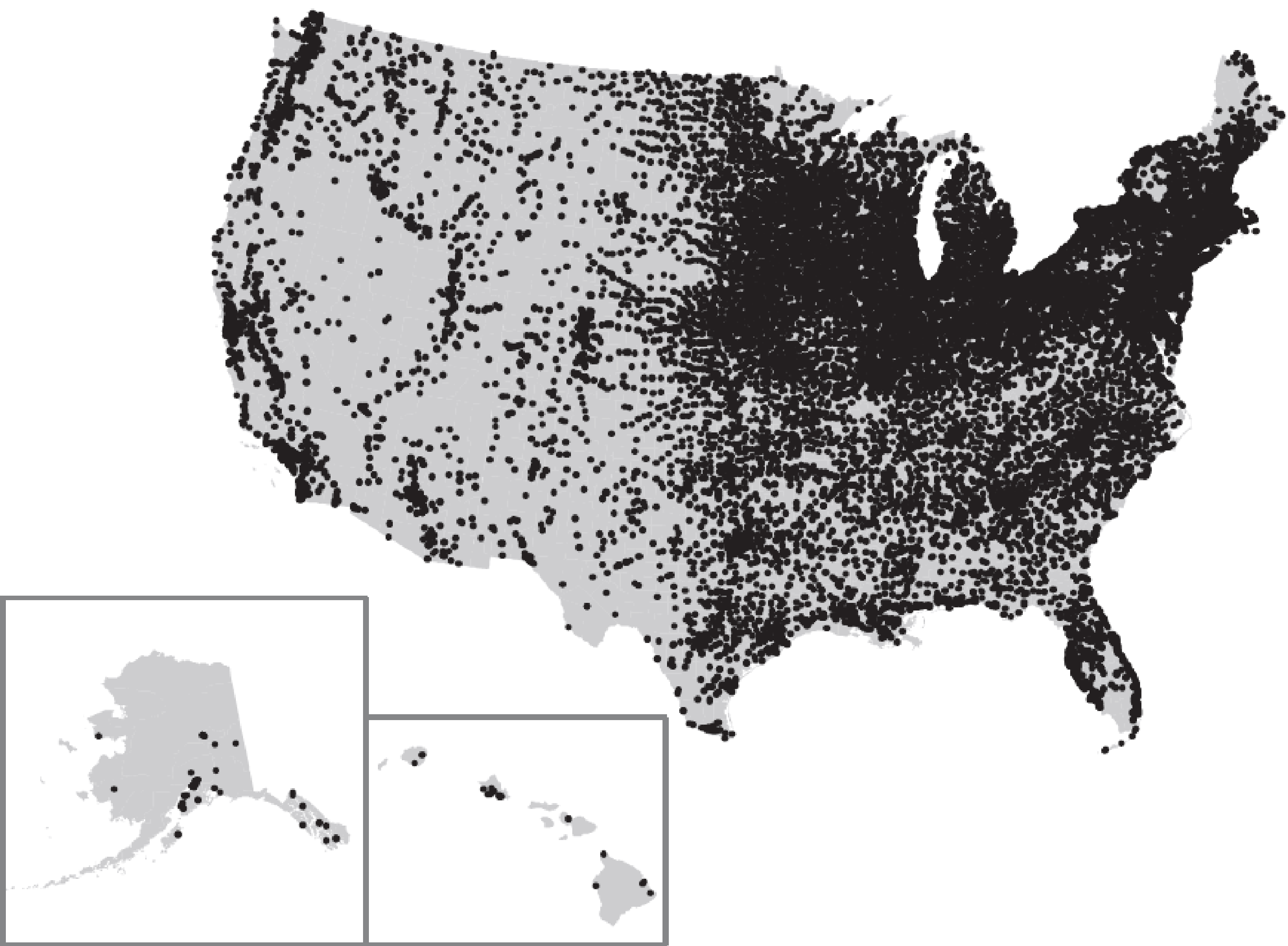
Bases and Other Major Installations



Veterans Centers, Hospitals, Clinics, and Cemeteries



Service Organization Posts (American Legion, AMVETS, MOAA, and VFW)



Models

- Outcome variables:
 1. percent of total loan originations that are VA mortgages
 2. VA mortgage per 10,000 eligible residents aged 18-64
- Independent variables:
 - Year (2004 = 0)
 - Percent of populations eligible for VA home loan (veteran/active duty)
 - Distance from county centroid to nearest major DOD site (= 0 if DOD site within county)
 - Distance to VA facilities
 - Density of VSO organizations in county
 - Zillow $\ln(\text{median home value})$, year-over-year change in price index
 - % units owner occupied
 - Ratio of veteran to non-veteran income
 - State fixed effects
- Multi-level mixed-effects model

Results: VA Loans as Percentage of All Purchase Mortgages

- Positively related to % eligible, vet:non-vet median income
- Negatively related to distance to base, area home values
- Substituting % FHA mortgage as dependent variable shows no relationship with proximity to bases
- No evidence that proximity to VA facilities or VSOs is positively correlated with VA mortgage use.

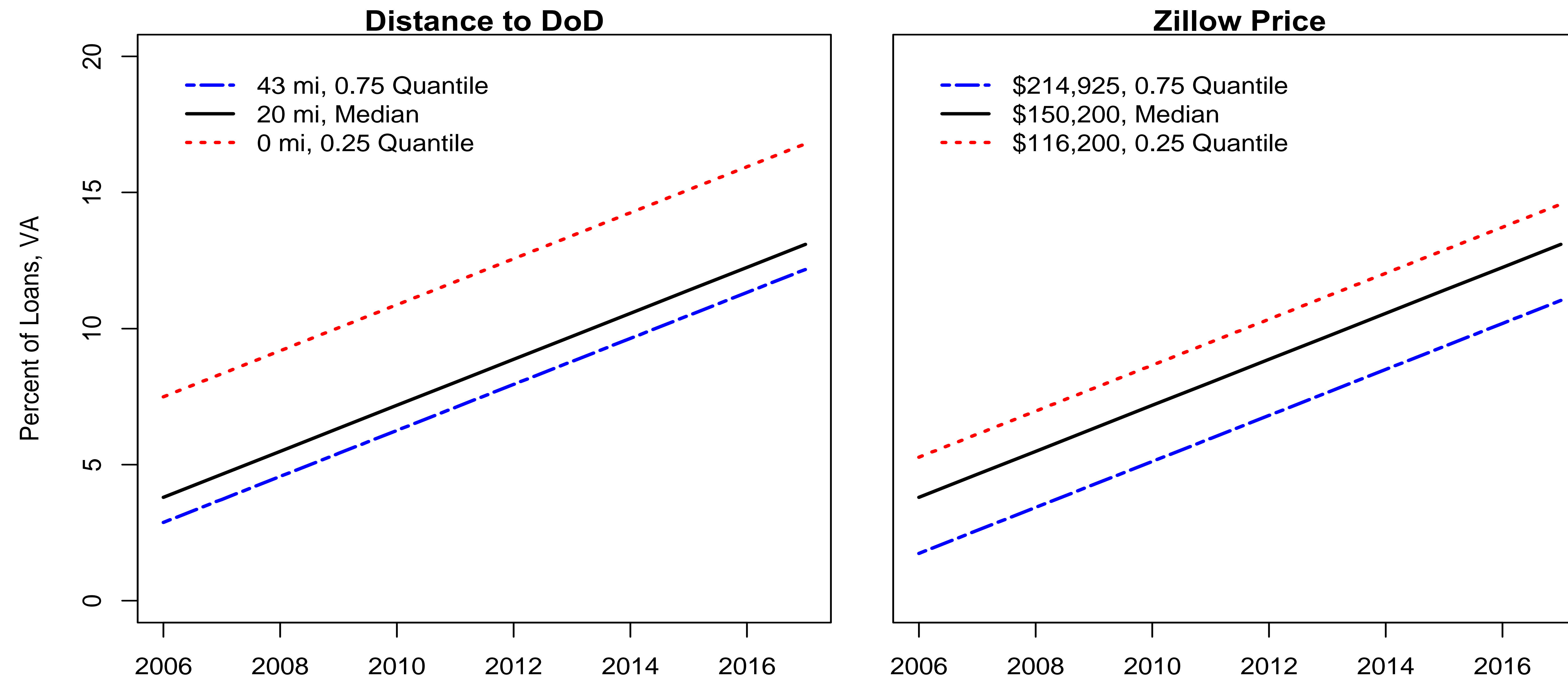
DoD = U.S. Department of Defense. FHA = Federal Housing Administration. VA = Department of Veterans Affairs. VSO = veterans service organization.

Note: ***, **, and * represent statistical significance at 0.1, 1, and 5 percent levels, respectively.

Source: Authors’ analysis of U.S. Census Bureau, Home Mortgage Disclosure Act, DoD, Zillow, American Legion, AMVETS, Military Officers Association of America (MOAA), and Veterans of Foreign Wars (VFW) data

	VA Mortgages as Percent of All Originations		FHA Mortgages as Percent of All Originations
	(1)	(2)	(3)
Constant	81.825*** (4.081)	79.193*** (3.291)	247.322*** (7.319)
Year (0=2006)	0.845*** (0.019)	0.845*** (0.019)	1.017*** (0.043)
% of Population VA Eligible	0.192*** (0.025)	0.193*** (0.025)	– 0.220*** (0.055)
ln Miles to Nearest...			
Major DoD Installation	– 1.242*** (0.148)	– 1.224*** (0.142)	– 0.277 (0.149)
VA Clinic	0.143 (0.299)		
VA Hospital	0.251 (0.337)		
Veterans' Center	– 0.182 (0.308)		
VA Cemetery	– 0.610 (0.322)		
VSO Density	– 0.503 (0.386)		
% of Housing Units Owner Occupied	– 0.085*** (0.013)	– 0.082*** (0.013)	– 0.025 (0.029)
Ratio of Veteran to Non-Veteran Income	1.083*** (0.194)	1.084*** (0.194)	1.097 (0.718)
Zillow House Price...			
ln Median Home Value	– 5.737*** (0.237)	– 5.751*** (0.234)	– 18.549*** (0.575)
Year-Over-Year Percentage Change	– 0.072*** (0.004)	– 0.072*** (0.004)	– 0.886*** (0.016)
State Fixed Effects	Y	Y	Y
Observations	7,884	7,884	7,884
Deviance	38,285.3	38,290.9	58,481.7

Results: VA Loans as Percentage of All Purchase Mortgages



Sources: Authors' analysis of U.S. Census Bureau, Home Mortgage Disclosure Act, DoD, VA, and Zillow data. *Notes:* All control variables other than year and those displayed are set to median levels. DoD = U.S. Department of Defense. VA = U.S. Department of Veteran Affairs.

Results: VA Loans per 10,000 Eligible Residents

- Positively related to area home values
- Negatively related to distance to base, % eligible (?), VSO density(?);
- Again, substituting % FHA mortgage as dependent variable shows no relationship with proximity to bases
- Again, no evidence that proximity to other VA facilities is positively correlated with VA mortgage use

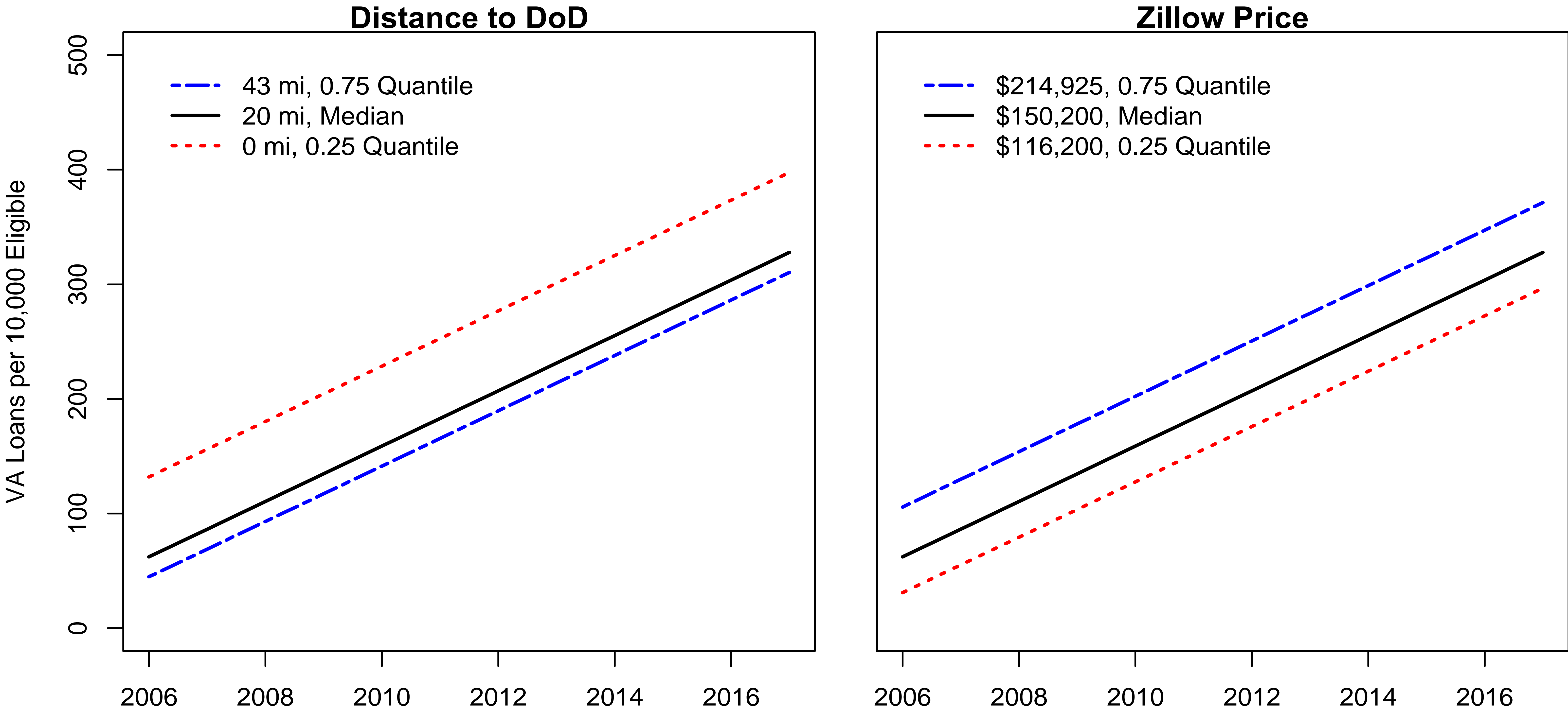
DoD = U.S. Department of Defense. FHA = Federal Housing Administration. VA = Department of Veterans Affairs. VSO = veterans service organization.

Note: ***, **, and * represent statistical significance at 0.1, 1, and 5 percent levels, respectively.

Source: Authors’ analysis of U.S. Census Bureau, Home Mortgage Disclosure Act, DoD, Zillow, American Legion, AMVETS, Military Officers Association of America (MOAA), and Veterans of Foreign Wars (VFW) data

	VA Mortgages per 10,000 Eligible Residents under Age 65		FHA Mortgages per 10,000 Eligible Residents under Age 65
	(1)	(2)	(3)
Constant	– 1247.283*** (76.774)	– 1205.305*** (64.616)	102.106*** (12.478)
Year (0=2006)	24.112*** (0.567)	24.144*** (0.567)	2.209*** (0.080)
% of Population VA Eligible	– 13.857*** (0.533)	– 13.779*** (0.532)	0.356*** (0.099)
ln Miles to Nearest...			
Major DoD installation	– 23.263*** (2.510)	– 23.112*** (2.488)	– 0.262 (0.305)
VA Clinic	1.122 (5.034)		
VA Hospital	5.079 (5.662)		
Veterans' Center	7.735 (5.184)		
VA Cemetery	– 7.157 (5.415)		
VSO Density	– 37.837*** (6.524)	– 42.426*** (5.235)	2.897*** (0.654)
% of Housing Units Owner Occupied	1.446*** (0.274)	1.472*** (0.272)	0.288*** (0.054)
Ratio of Veteran to Non-Veteran Income	4.649 (4.154)		
Zillow House Price...			
ln Median Home Value	122.144*** (4.967)	121.426*** (4.946)	– 8.559*** (1.041)
Year-Over-Year Percentage Change	1.248*** (0.088)	1.246*** (0.088)	– 0.730*** (0.023)
State Fixed Effects	Y	Y	Y
Observations	7,884	7,884	7,884
Deviance	86,715.8	86,721.6	64,628.8

Results: VA Loans per 10,000 Eligible Residents



Sources: Authors’ analysis of U.S. Census Bureau, Home Mortgage Disclosure Act, DoD, VA, and Zillow data. *Notes:* All control variables other than year and those displayed are set to median levels. DoD = U.S. Department of Defense. VA = U.S. Department of Veteran Affairs.

Discussion

- Results are highly robust to excluding counties with large land areas.
- No evidence that counties with bases are served by different types of lenders, which could drive the results we observe:
 - Top 7 VA lenders in counties with bases are the same as top 7 in counties without bases.
 - In counties with bases, these firms made 33% of the VA loans in 2017
 - In counties without bases, they made 31% of the VA loans
 - Neither type of county has evidence of concentrated VA lending, based on HHI calculations
- Need more analysis on impact of guaranty limits.
 - In 2017, only 3% of VA loans originated nationally exceeded “zero-down-payment loan limit” (6% within “high cost” counties)

Conclusion

- In recent years, the VA home loan program has grown both as a share of all mortgage originations and in the total volume of originations.
 - Many eligible borrowers may still be unaware they qualify for the benefit
- Use of the program has been strongest in areas near military bases. Why?
 - Are lenders, real estate brokers, and sellers around military installations more willing to engage in the process of financing a home purchase with a VA loan?
- Will VA loans keep their popularity as more low-down-payment options become available?
- Thank you!
 - For the paper, visit https://www.jchs.harvard.edu/sites/default/files/harvard_jchs_housing_tenure_symposium_spitzer_lambie-hanson_2019.pdf.



Homeownership, Military Service, and the Importance of VA Mortgages

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NOVEMBER 2019

The Impact of the US Military on Homeownership and Income

Sarah Strochak, Housing Finance Policy Center

Jung Hyun Choi, Housing Finance Policy Center

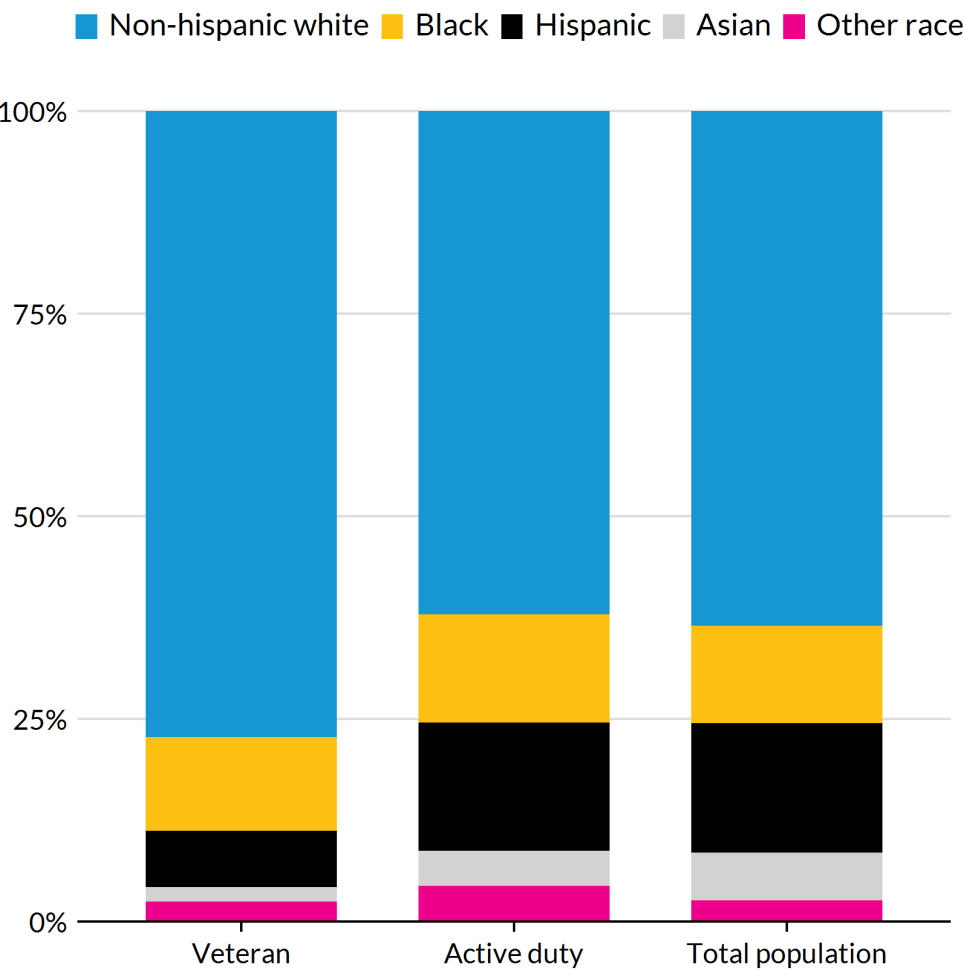


Inspiration

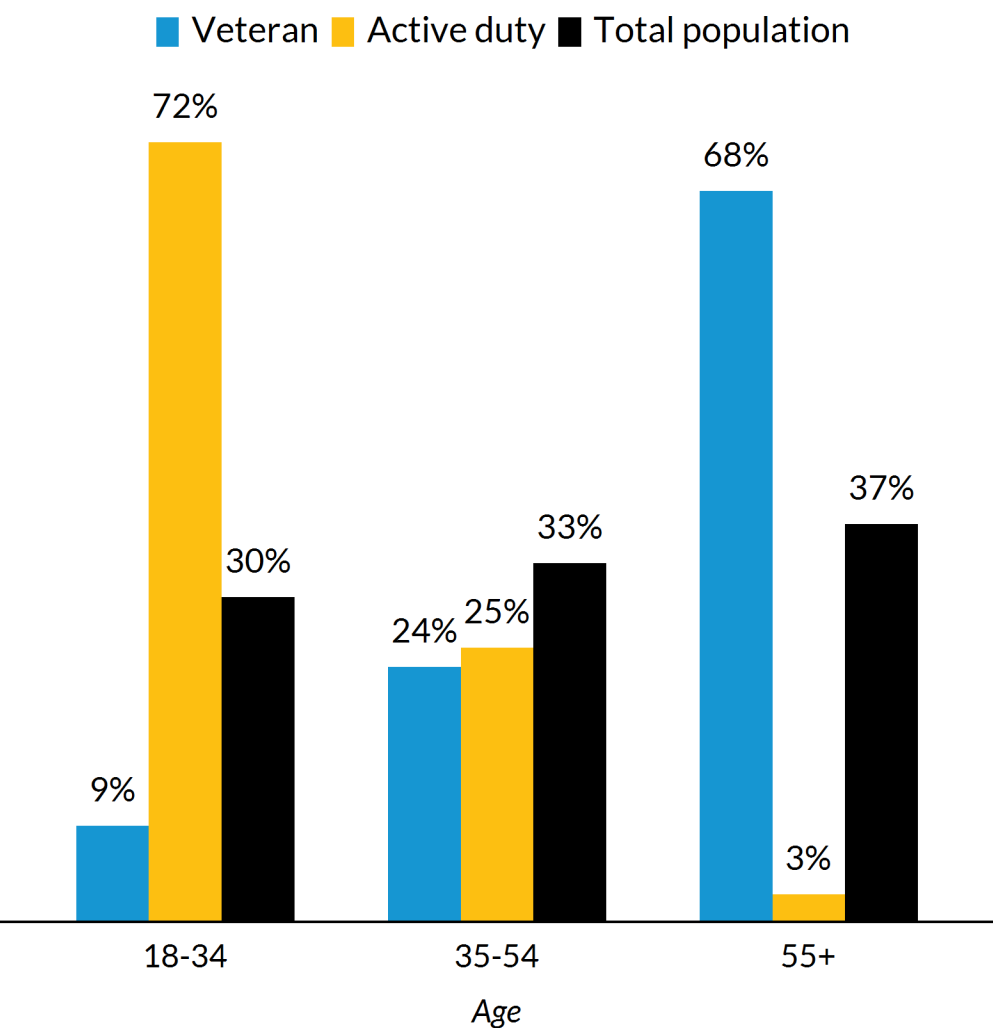
- The black-white homeownership gap is 30 points- wider than before the Fair Housing Act was passed in 1968.
- In previous research, we found that many of the cities with the smallest racial disparities in homeownership were cities with large military bases.
- Our research explores how the US military may act as an equalizer, for income and homeownership opportunities.

Demographics of the US Military

Veteran Population by Race and Ethnicity

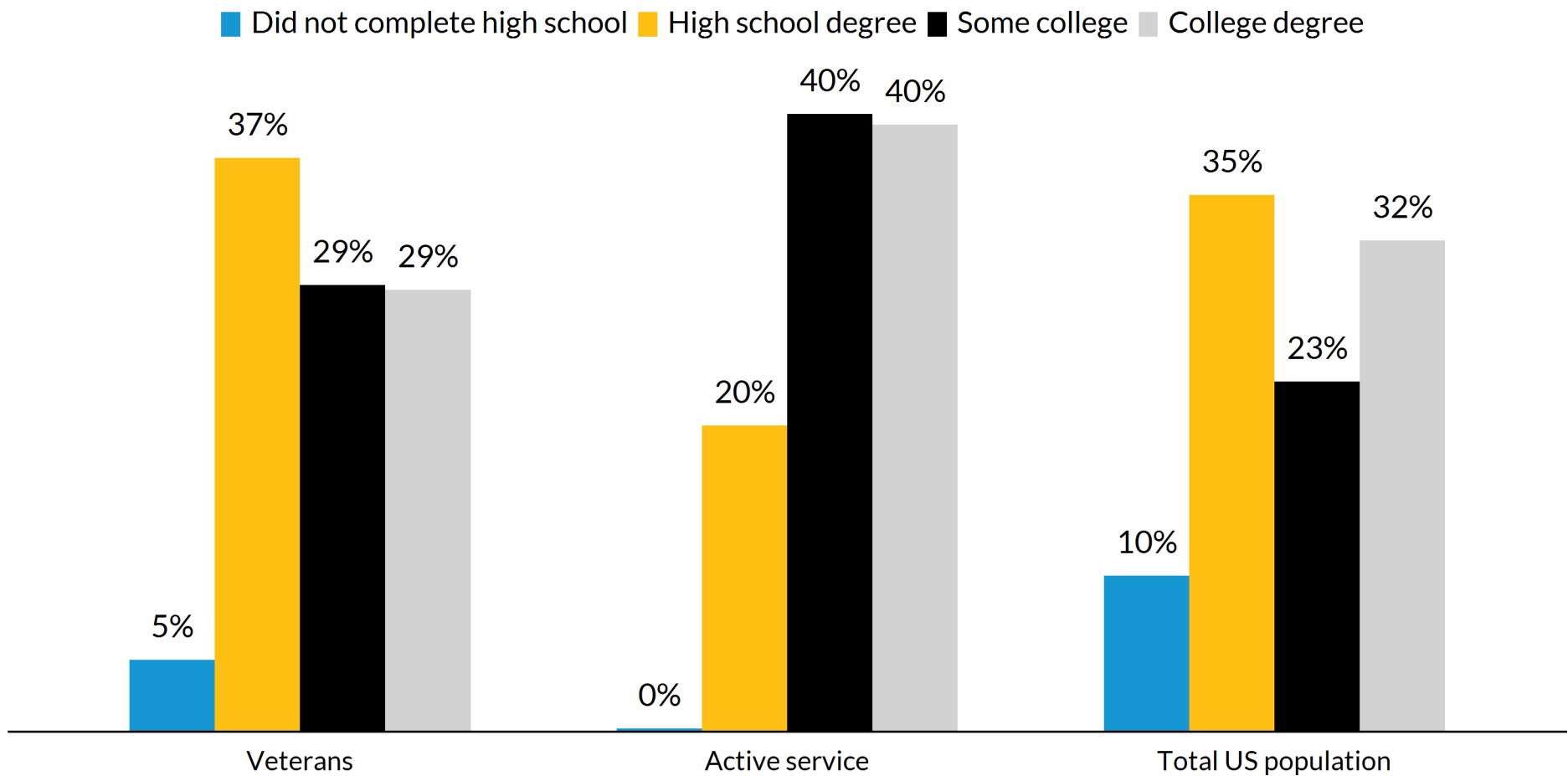


Veteran Population by Age



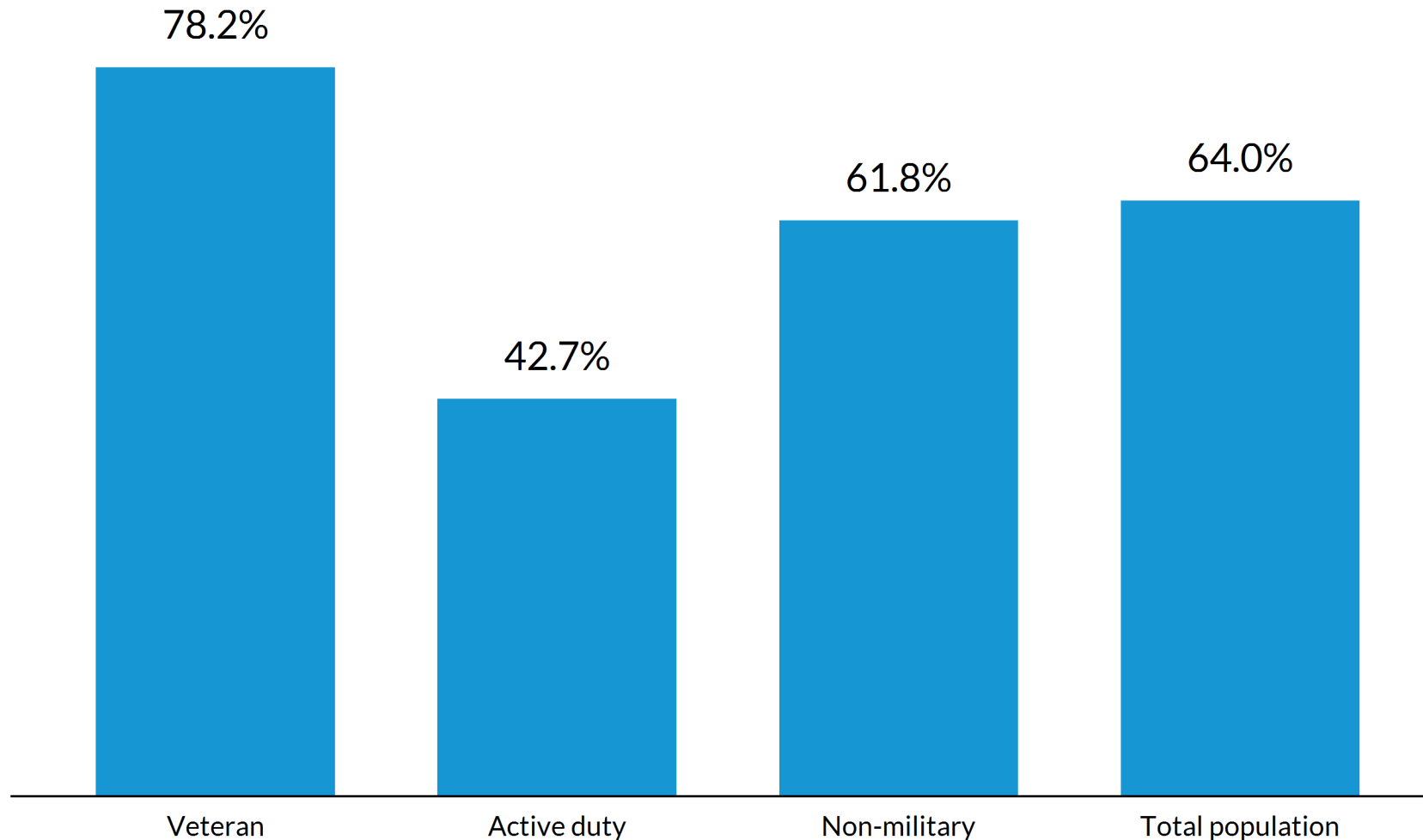
Both veterans and those currently serving tend to be better educated than the general public

Educational Attainment by Military Status



Veterans have a higher homeownership rate

Homeownership Rate by Military Status

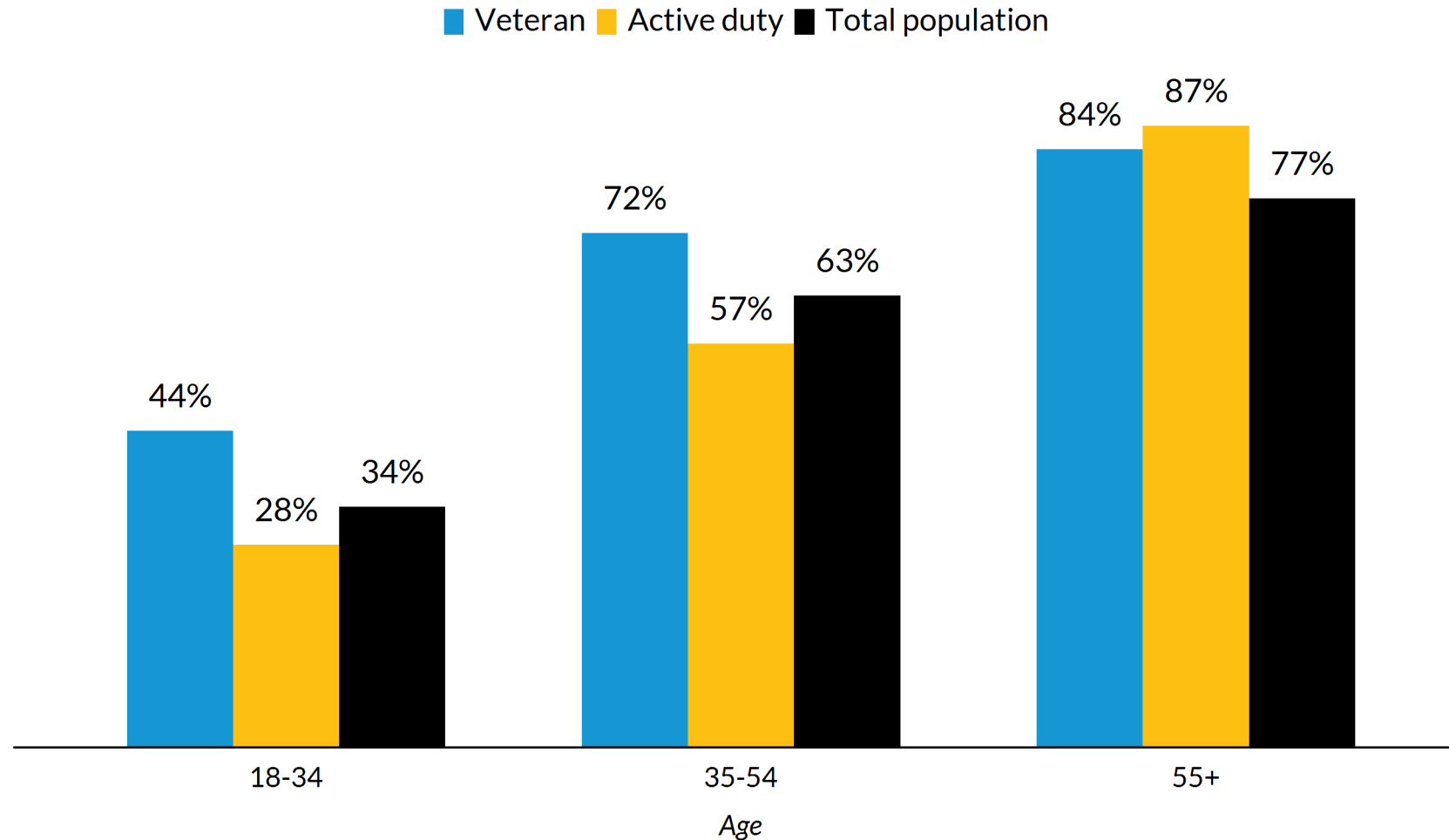


Veteran Homeownership

- On average, veterans are older, whiter, more male, and higher educated than the general population- all qualities that make you more likely to be a homeowner.
- But the differences in homeownership cannot be explained by demographic differences alone.

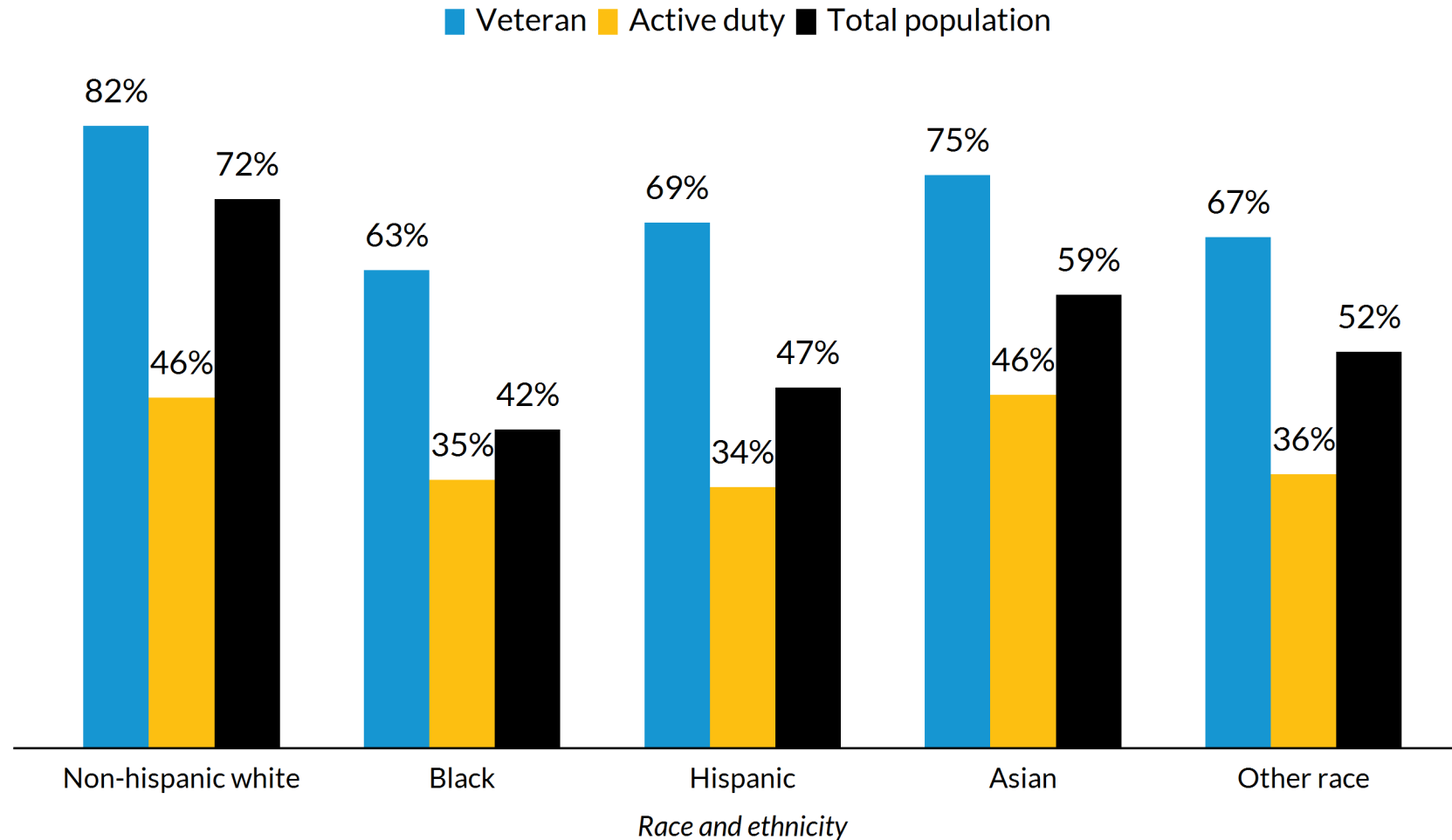
Veteran homeownership is higher across all age groups

Homeownership Rate by Age and Military Status



Racial disparities are smaller for veterans and active duty

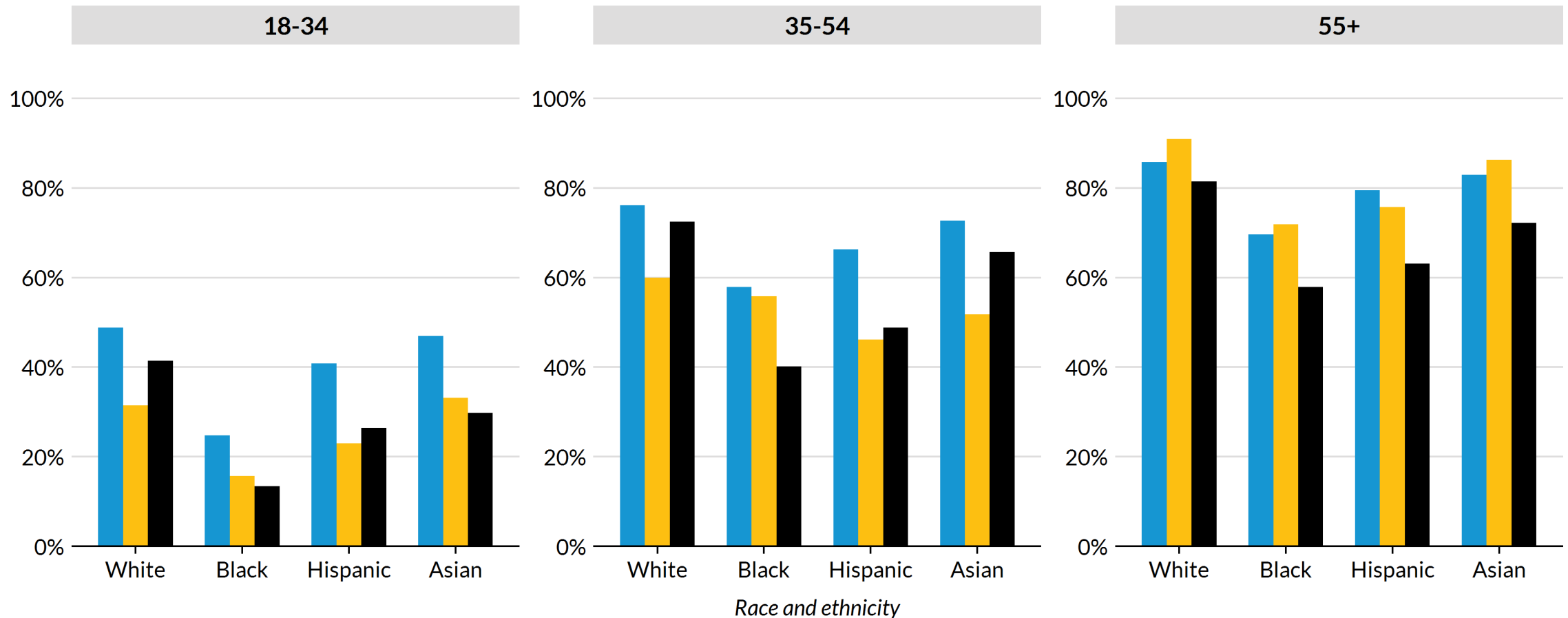
Homeownership Rate by Race/Ethnicity and Military Status



Even within the same age and race groups, veteran homeownership is higher

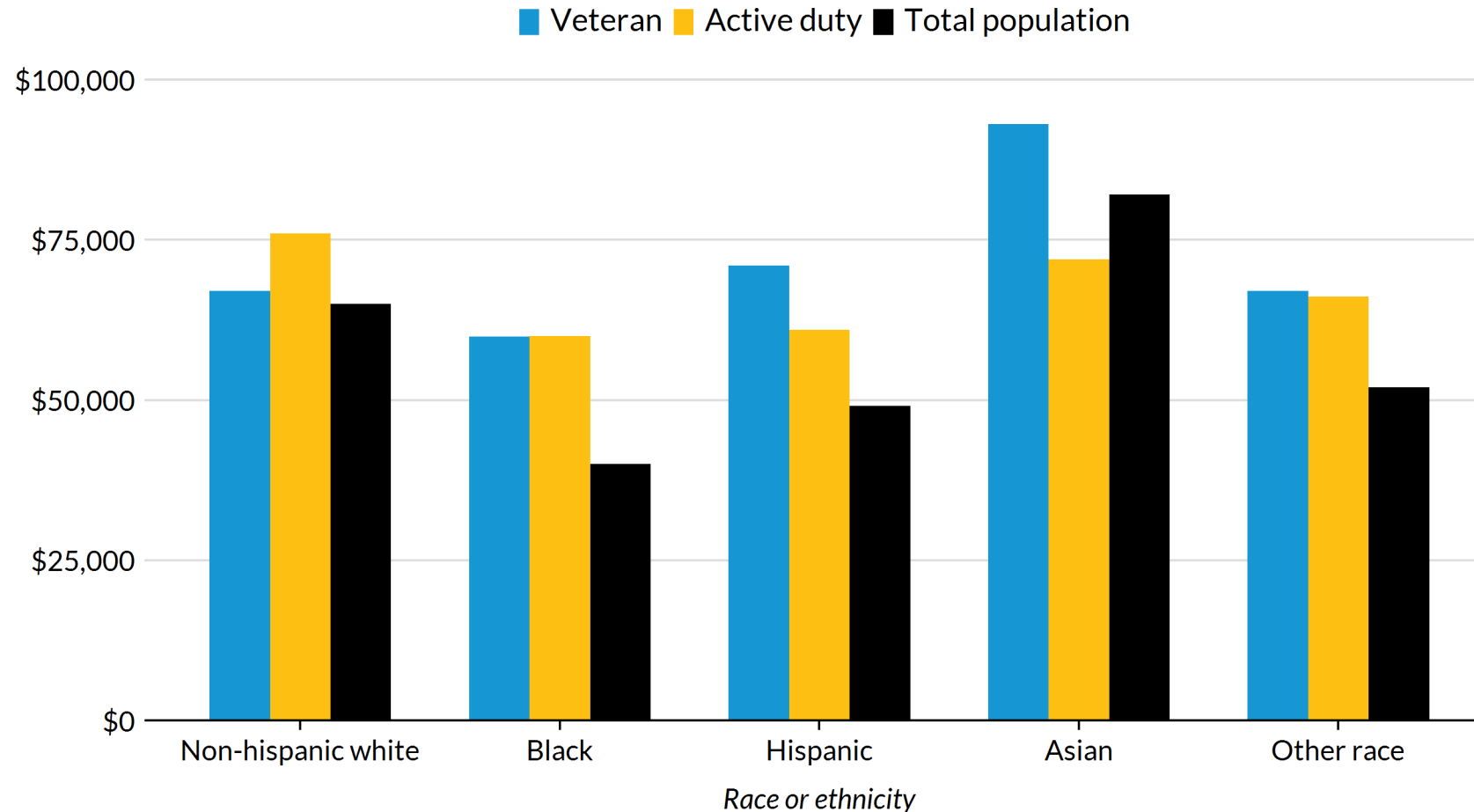
Homeownership Rate by Race/Ethnicity, Age, and Military Status

■ Veteran ■ Active duty ■ Total population



We see similar results for household income

Median Household Income by Race/Ethnicity and Military Status

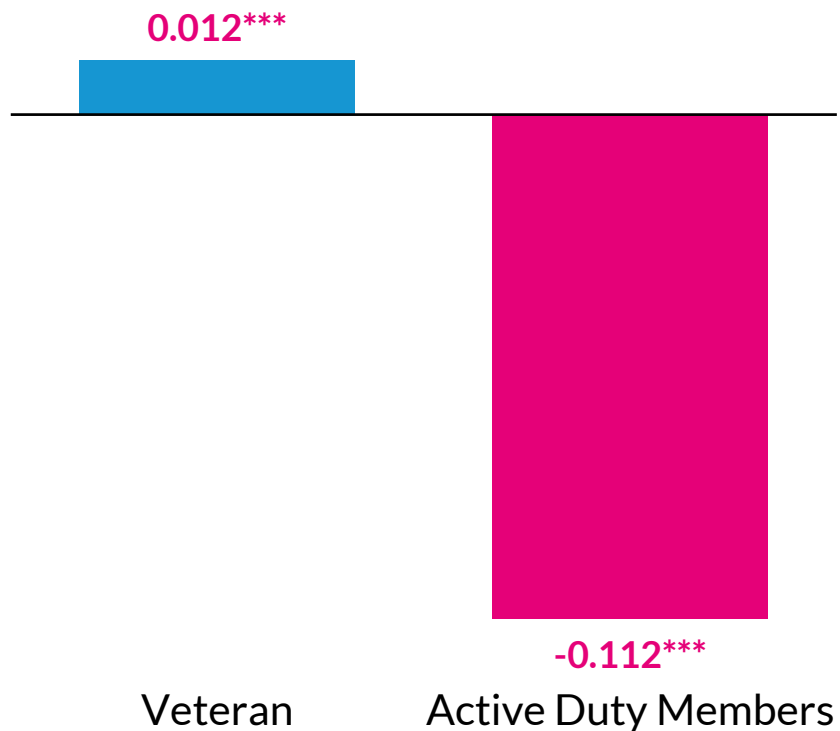


Summary Statistics

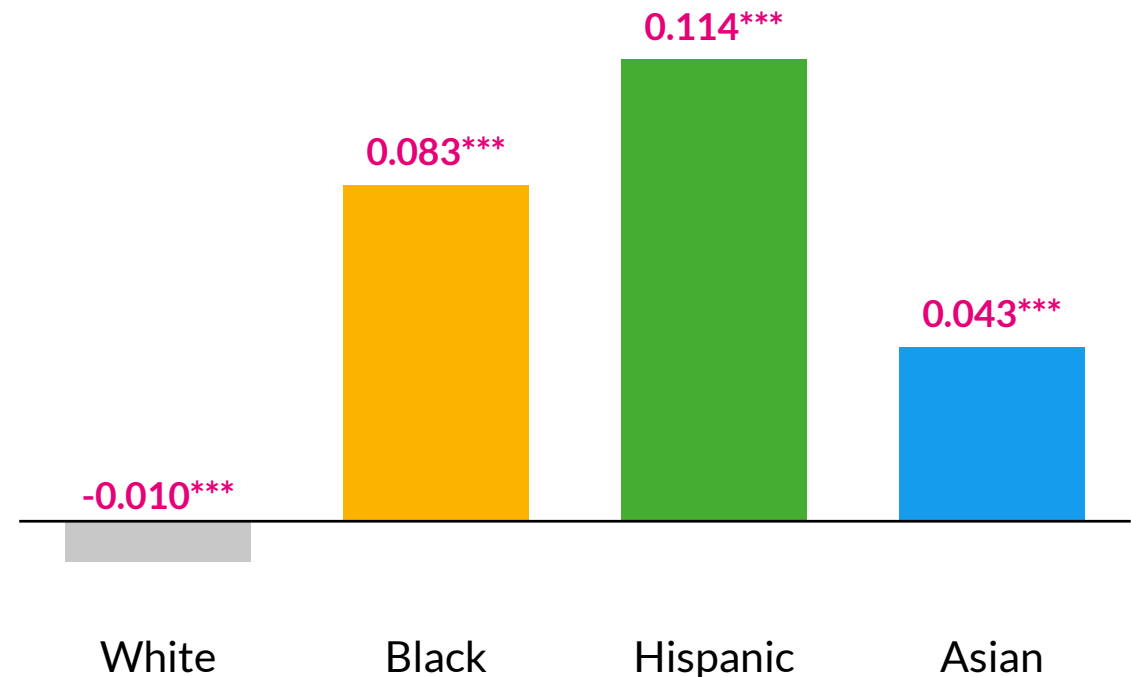
Variable	Non-Veteran		Veteran		Active Duty Members	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<i>Household Level (Head) Characteristics</i>						
Homeownership	0.64	0.48	0.79	0.41	0.48	0.50
Household Income	84,839	94,018	87,560	82,511	90,796	62,612
Age	51.91	16.08	62.34	15.82	37.24	10.50
Female	0.53	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
With 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
<i>Puma Level Characteristics</i>						
Military Base: Puma	0.09	0.29	0.14	0.34	0.47	0.50
Distance to the Nearest Base	77.18	62.97	76.30	64.89	32.49	50.89
Median Home Price: Puma	273,611	216,867	236,683	168,622	263,925	177,315
No. of Observations	1,012,483		186,376		6,592	

Regression: Veteran Status & Homeownership

Homeownership & Veteran Status

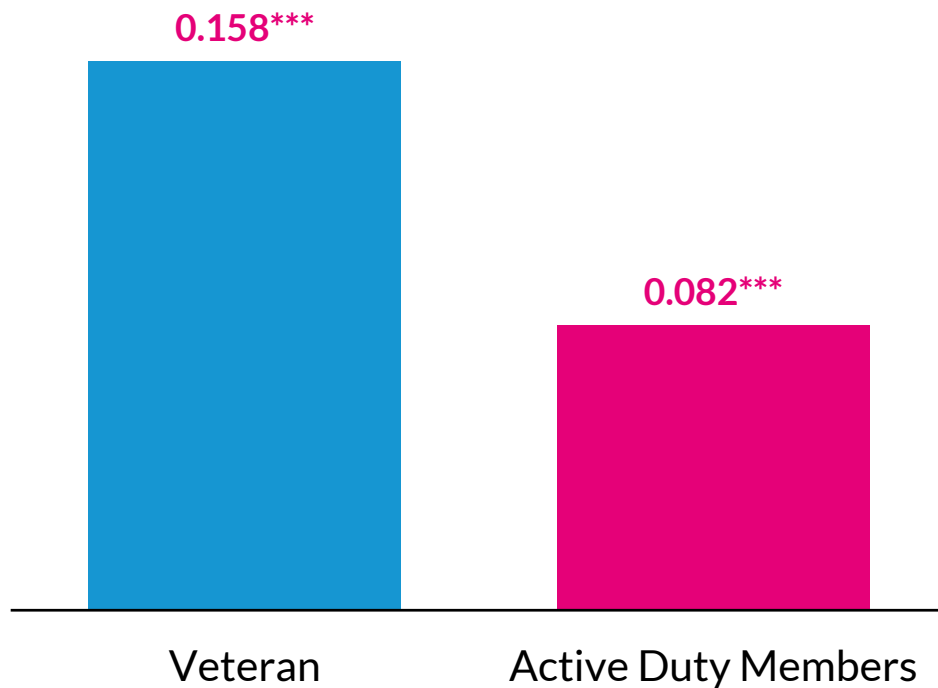


Homeownership & Veteran Status by Race/Ethnicity

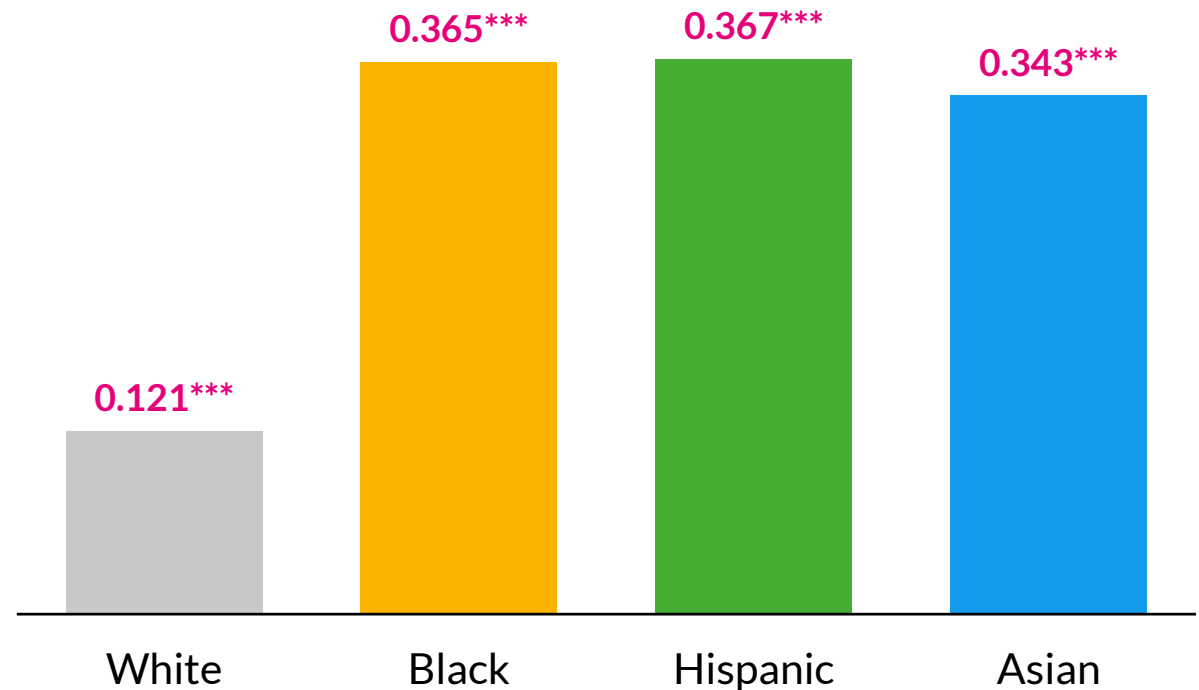


Regression: Veteran Status & Household Income

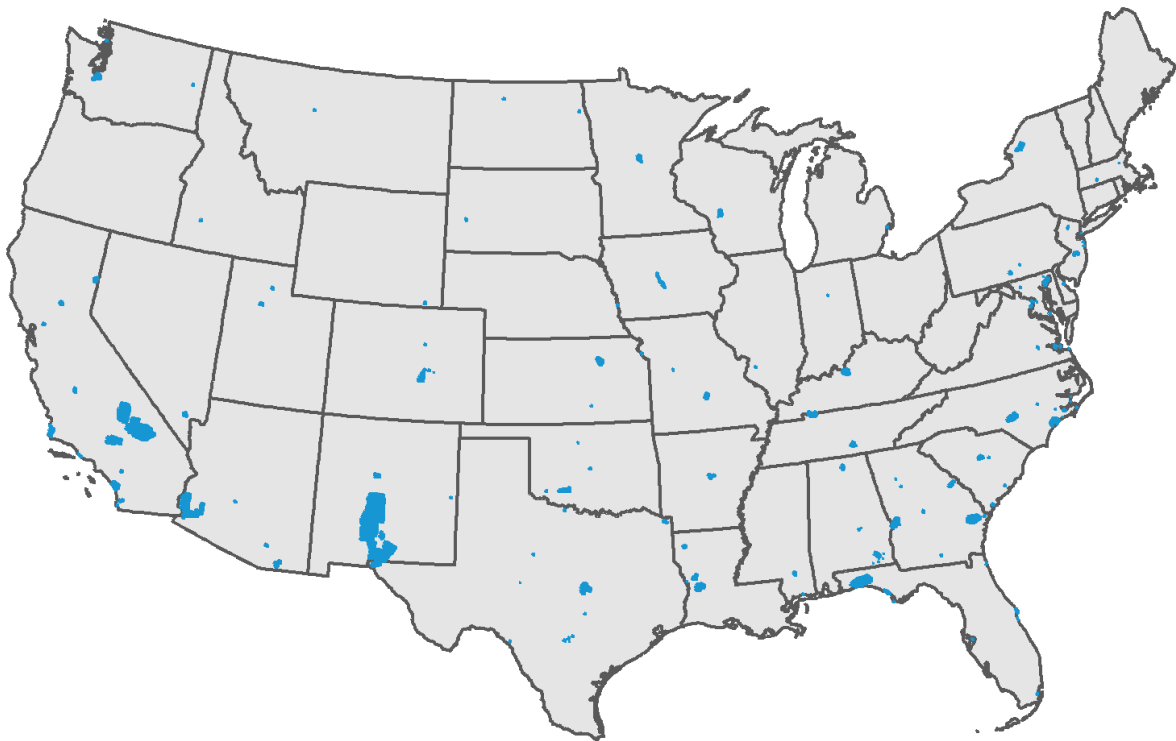
Household Income & Veteran Status



Household Income & Veteran Status by Race/Ethnicity



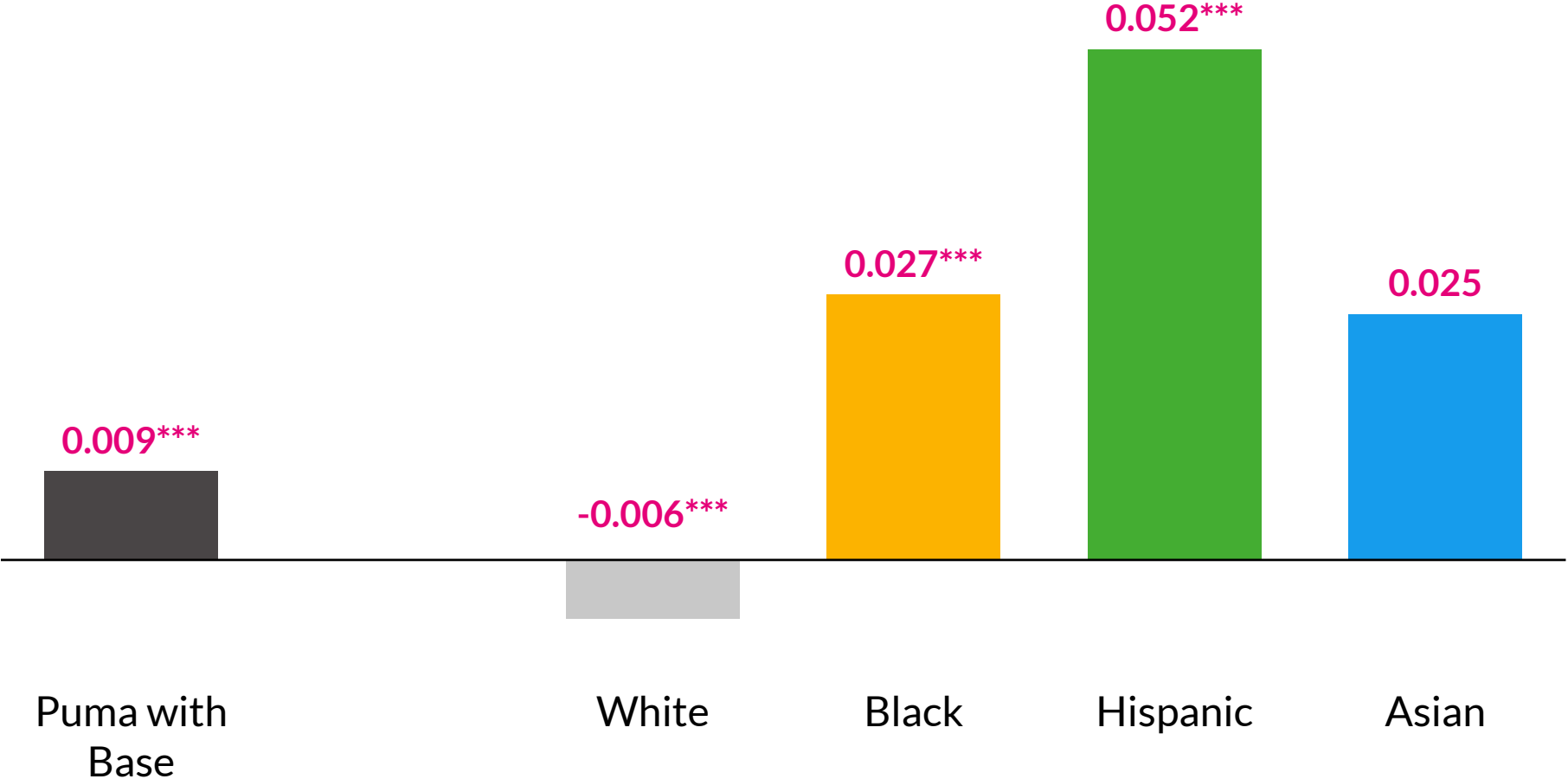
What is the impact of large military bases?



CBSA	Base distance	Military share of labor force
Fayetteville, NC	Contains base	16.61%
Clarksville, TN-KY	Contains base	12.85%
Wichita Falls, TX	Contains base	11.50%
Bremerton-Silverdale, WA	Close to base	9.42%
Virginia Beach-Norfolk-Newport News, VA-NC	Contains base	9.17%
Colorado Springs, CO	Contains base	7.94%
Hilton Head Island-Bluffton-Beaufort, SC	Contains base	6.48%
Norwich-New London, CT	Close to base	5.65%
Hanford-Corcoran, CA	Contains base	5.28%
San Angelo, TX	Contains base	5.19%

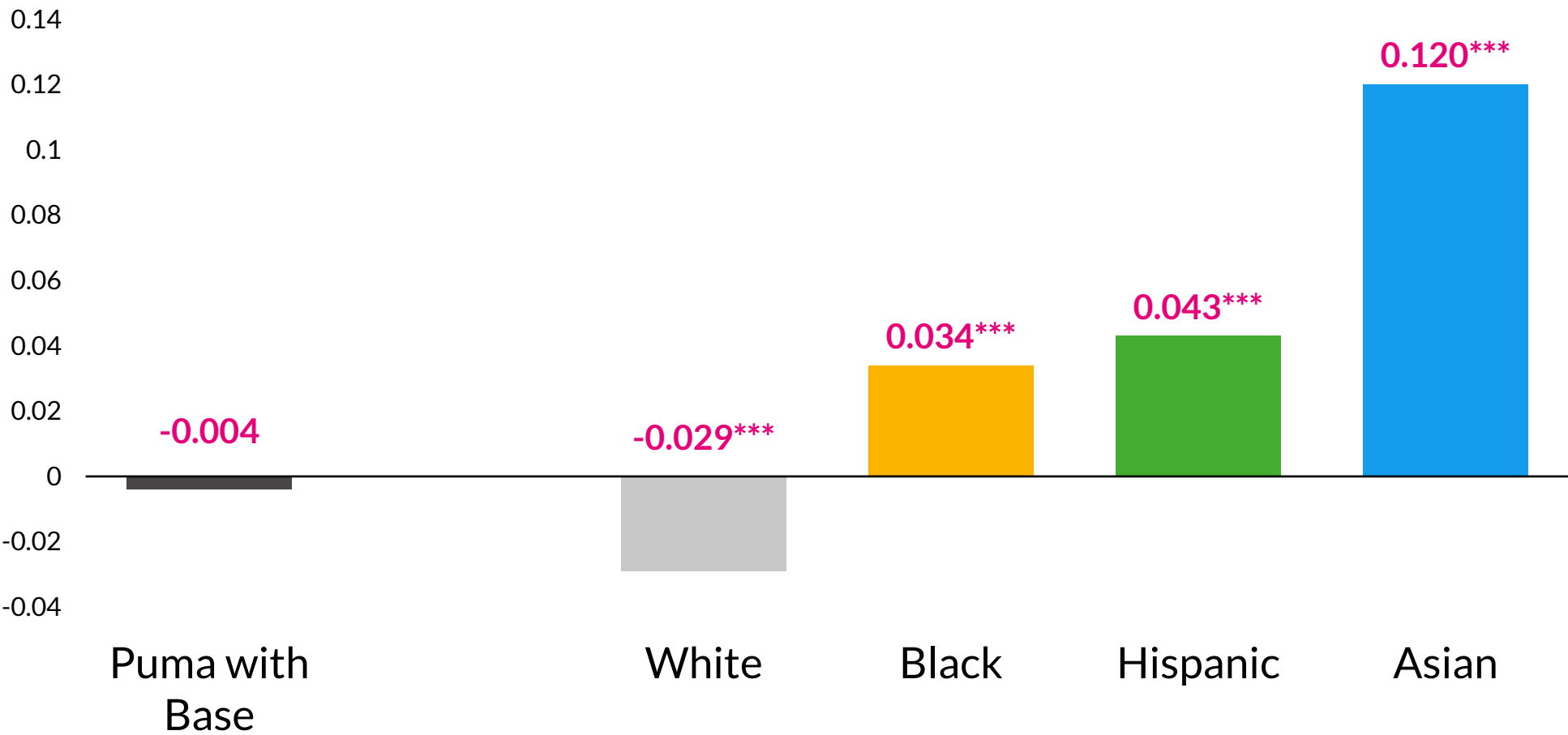
Regression: Military Base & Homeownership

Homeownership & Military Base



Regression: Military Base & Household Income

Household Income & Military Base



Conclusion

- The **military is a great equalizer**; veteran status increases the homeownership rate for blacks, Hispanics and Asians while making very little difference in that of the white population
- The **presence of a military base in the area does contribute**, albeit more marginally to increases in the homeownership rate and income of blacks, Hispanics and Asians. It makes very little difference for whites.



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Patrick Lapid | Economist, Office of Research | November 12, 2019



Disclaimer

The views expressed are those of the author and do not necessarily reflect those of the Consumer Financial Protection Bureau or the United States.

Military base locations matter for VA loan use!

Spitzer and Lambie-Hanson:

- Base proximity matters even with veteran population as a control variable.
- VA facilities and VSOs (veterans' organizations) do not affect loan use.
- Increased share of VA out of all home loans (relative measure) AND number of VA loans per 10,000 eligible adults (absolute measure).
- No change in FHA loans—so bases may not affect overall mortgage activity.

Choi and Strochak:

- Veteran / active-duty status for people of color is associated with increased homeownership and household income.
 - For white veterans, no change in homeownership and smaller rise in income.
- Base presence correlated with increased homeowner rate and incomes of people of color, even with vet/military controls.
- Useful comparisons by veteran status, age, and race/ethnicity.

But...what's the mechanism? (and other comments and questions)

Spitzer and Lambie-Hanson:

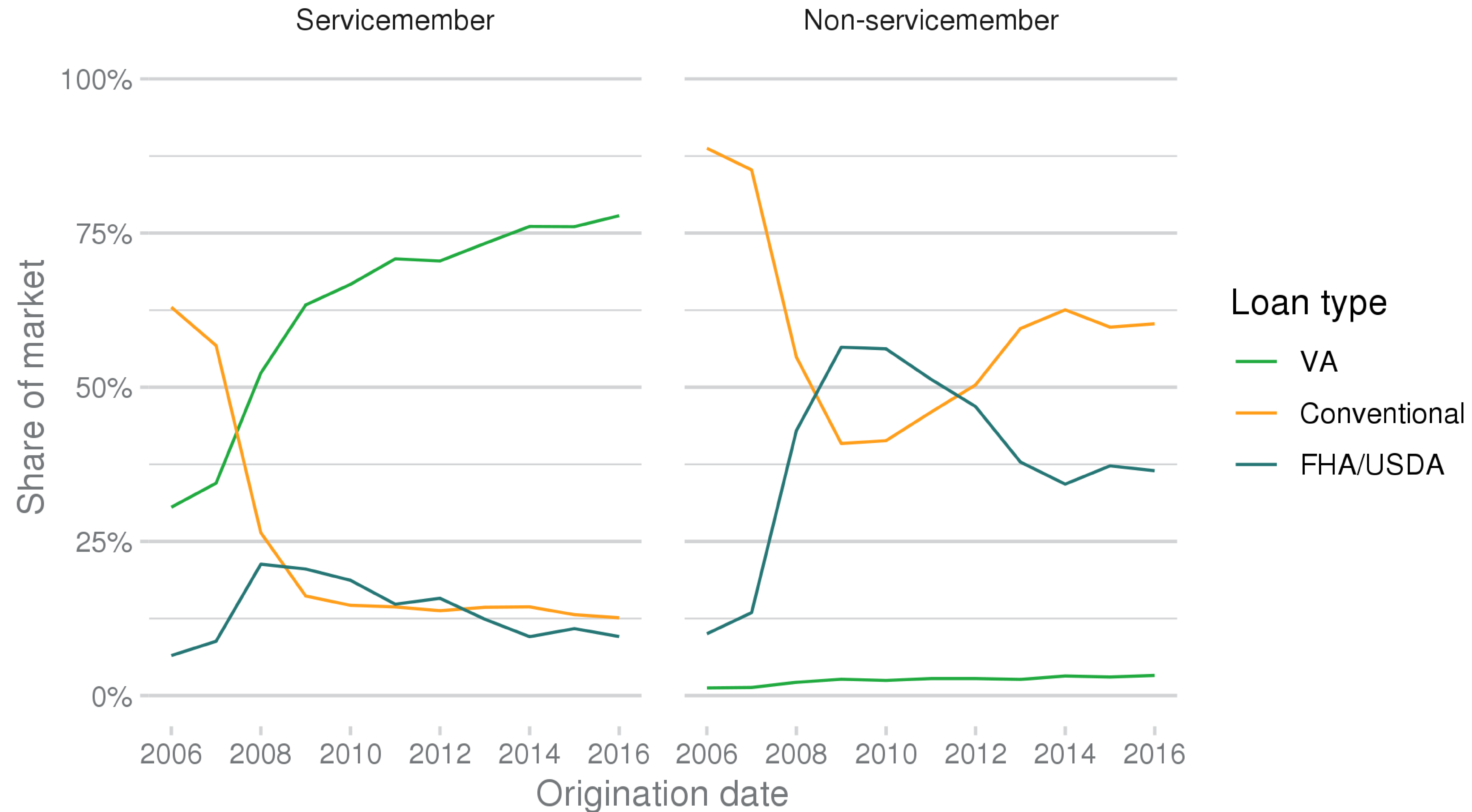
- Why don't VA facilities and VSOs matter for VA lending?
 - Relevant populations for these institutions may be older/retired veterans.
 - More relevant for other VA programs, such as health and disability benefits.
- Why are some areas less likely to use VA, even with many eligible vets?
 - Role of state and regional differences (e.g., Northeast, high-cost counties).
 - Role of lenders: banks, credit unions, nonbanks, fintechs focusing on VA.
 - More "VA eligible" can mean an older population (as Choi and Strochak show).

But...what's the mechanism? (and other comments and questions)

Choi and Strochak:

- Discussion of selection bias in military service (Angrist 1998)
 - Self-selection from volunteering AND screening on physical and mental traits.
- Household as level of observation.
 - Does it matter which spouse is a veteran (or if both are)? How about the head of HH?
 - How are reservists taken into account in the data?
 - What about mixed-race households?
- Are key interactions missing? (e.g., veteran-race-base interactions)

Home loan shares of first-time homebuyers in the CCP



Source: CFPB. (2019). "Mortgages to First-Time Homebuying Servicemembers."

VA loans make up a larger share of all mortgages to black borrowers

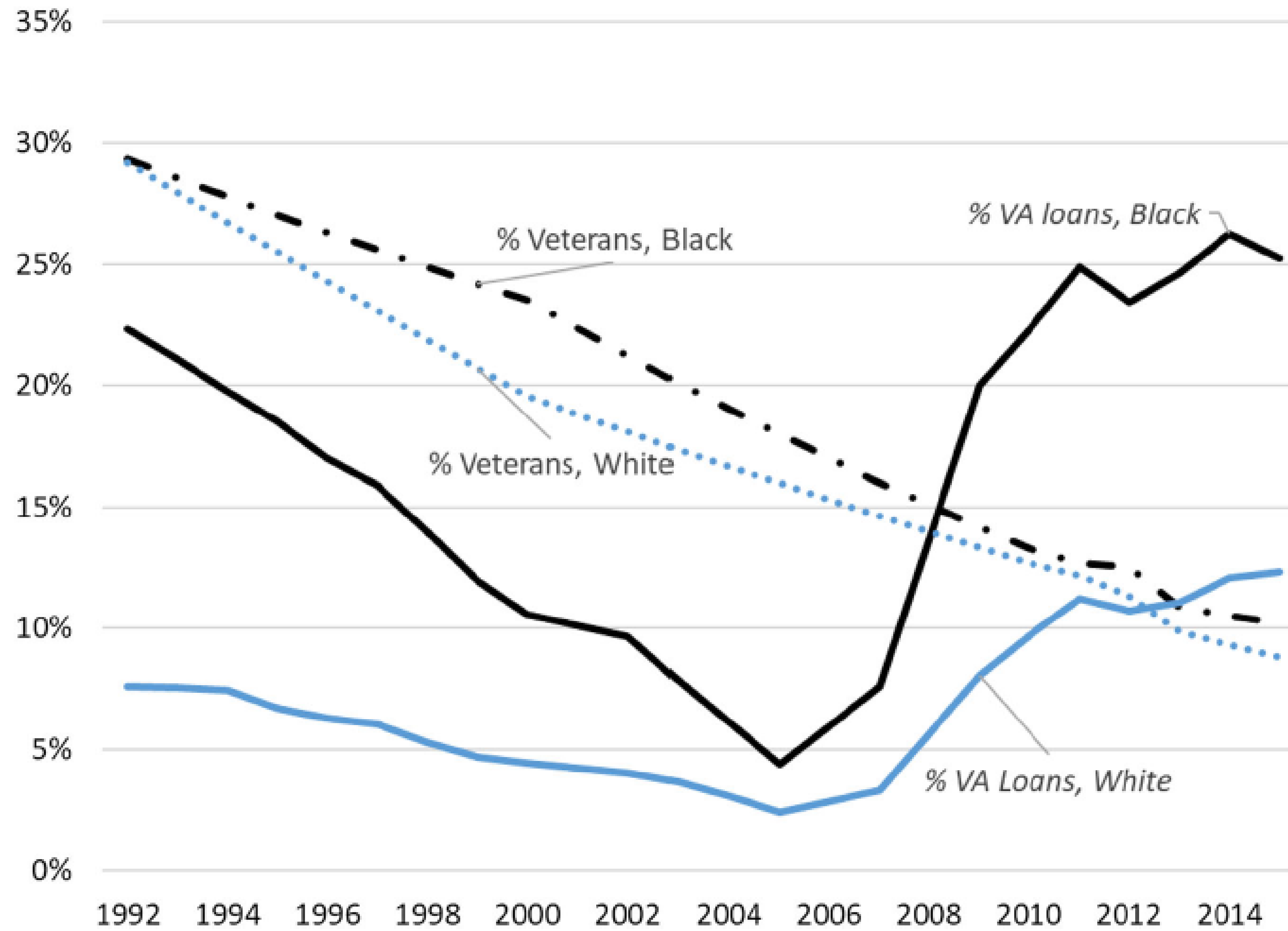
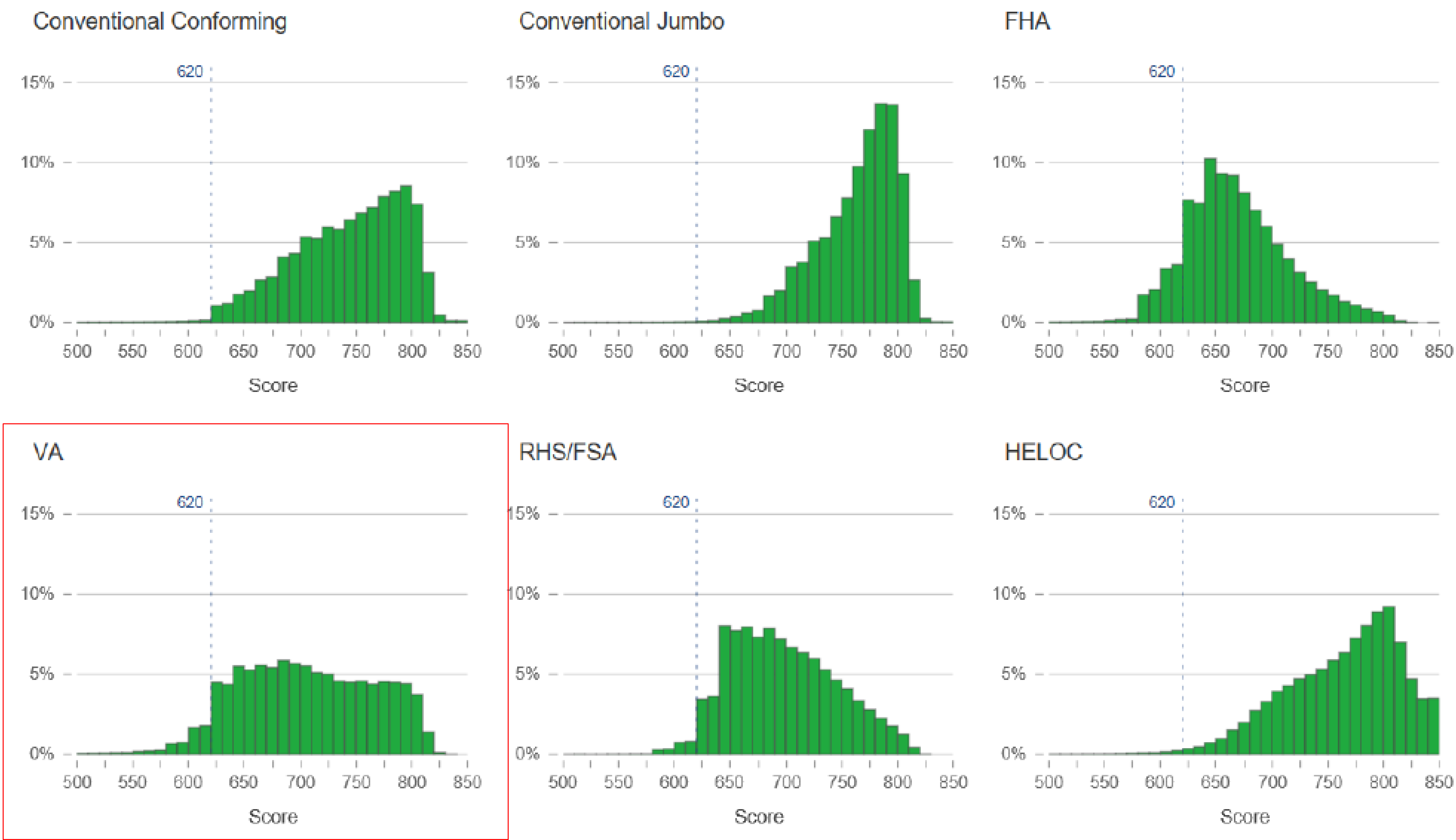


Fig. 1 Percent veterans, Pop. 18–64 versus percent VA loans, homebuyers: white men and black men

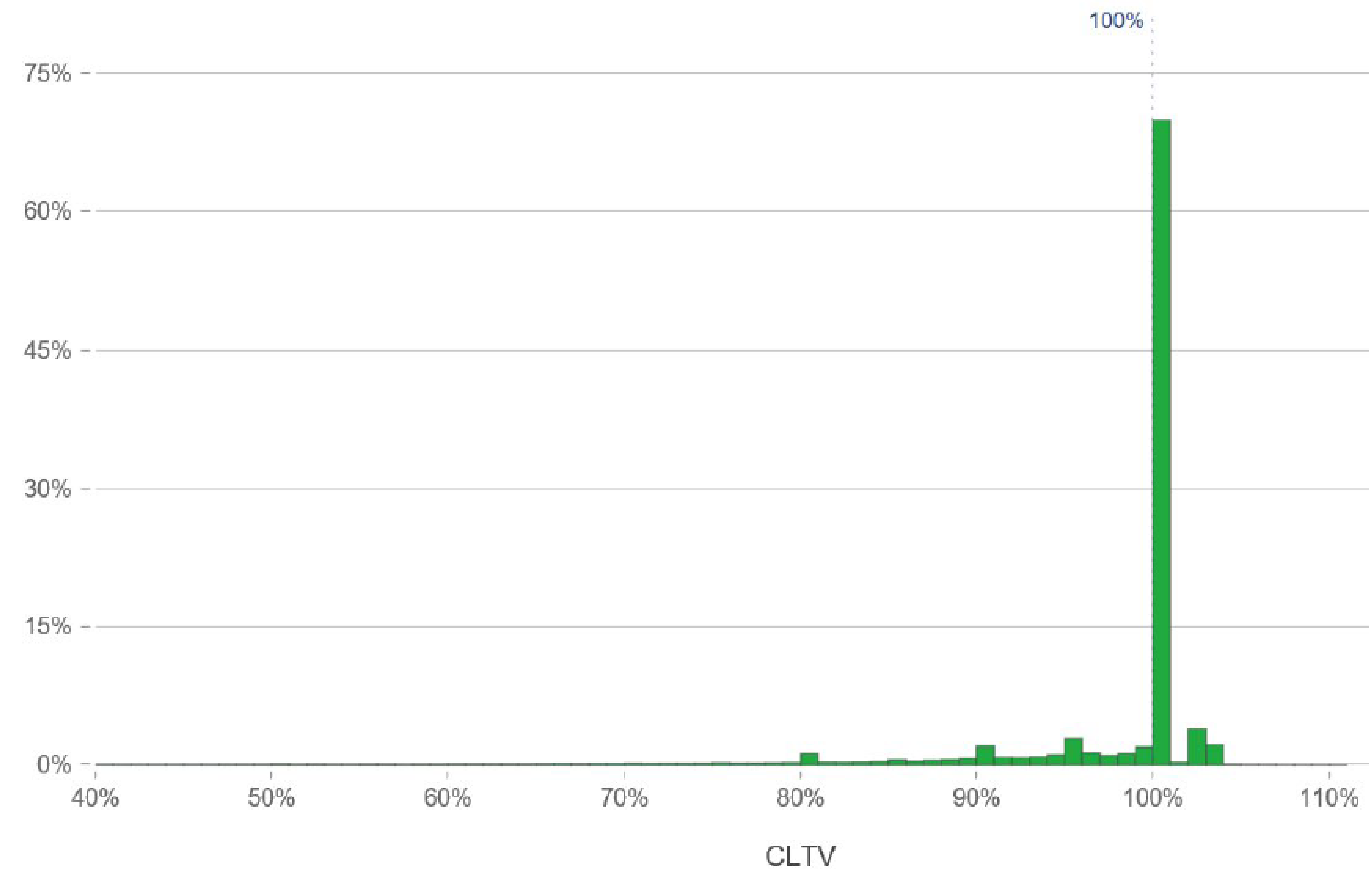
FIGURE 6.4.1 HISTOGRAM OF CREDIT SCORES BY ENHANCED LOAN TYPE: ORIGINATED LOANS ONLY



NOTE: Site-built single-family originations. The vertical reference line represents a credit score of 620.

Source: CFPB. (2019). “Introducing New and Revised Data Points in HMDA.”

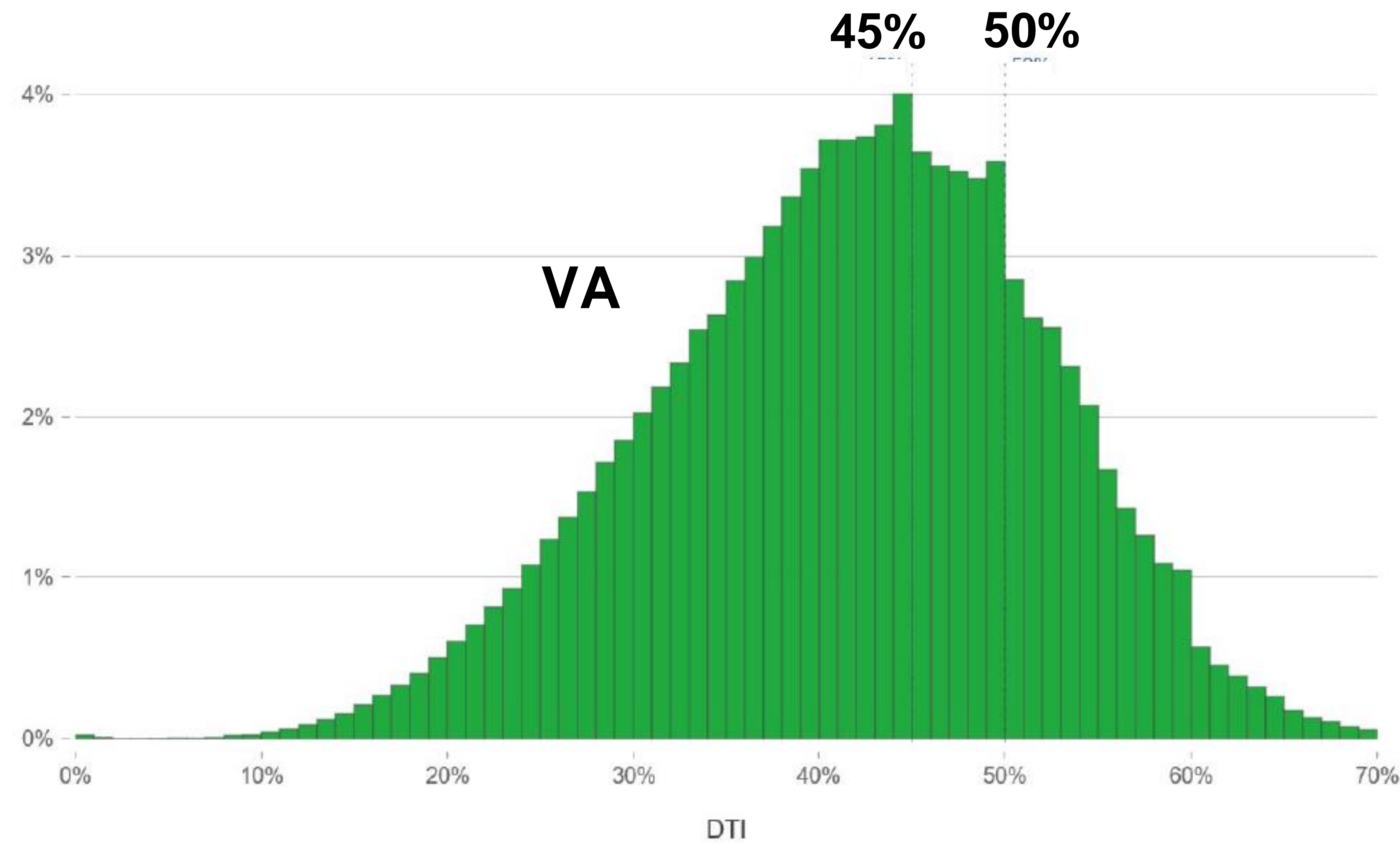
FIGURE 6.5.4A HISTOGRAM OF CLTV:VA HOME-PURCHASE LOANS



NOTE: Site-built single-family closed-end VA, home-purchase originations. The vertical reference line represents CLTV equal to 100%.

Source: CFPB. (2019). “Introducing New and Revised Data Points in HMDA.”

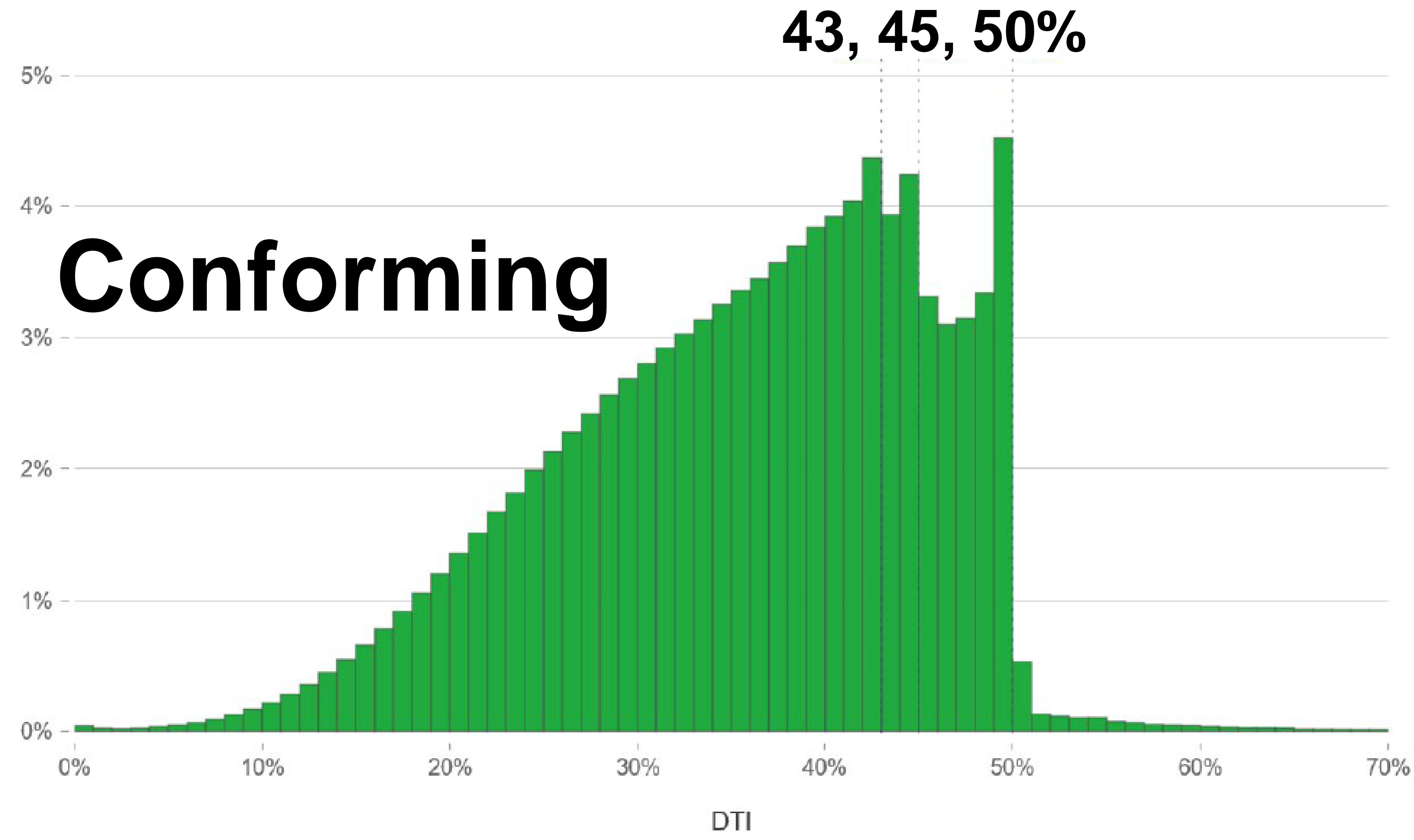
FIGURE 6.6.4 HISTOGRAM OF DTI: VA LOANS



NOTE: Site-built single-family closed-end VA originations. The two vertical reference lines represent DTI equal to 45% and 50% respectively.

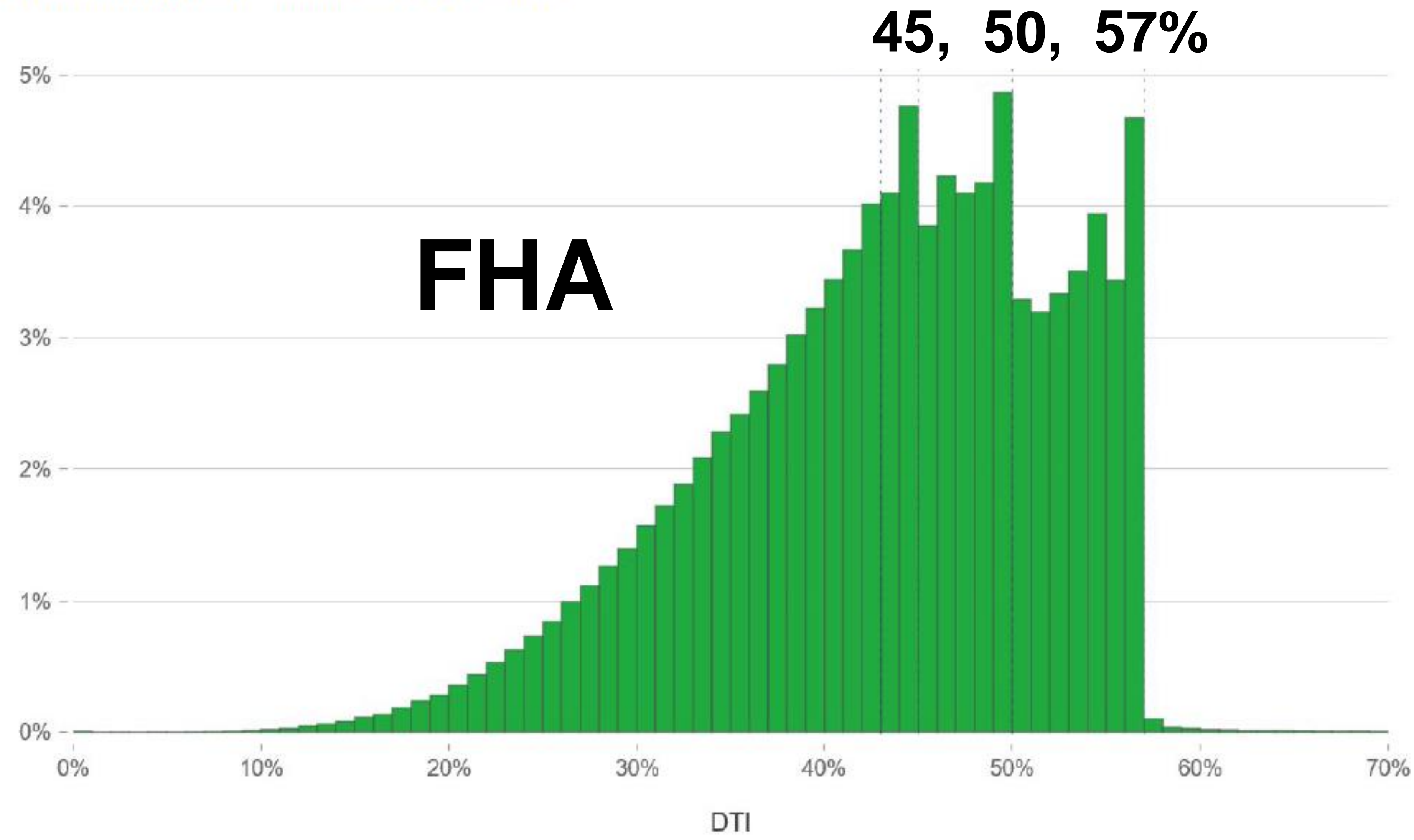
Source: CFPB. (2019). “Introducing New and Revised Data Points in HMDA.”

FIGURE 6.6.1 HISTOGRAM OF DTI: CONVENTIONAL CONFORMING LOANS



NOTE: Site-built single-family closed-end conventional conforming originations. The three vertical reference lines represent DTI equal to 43%, 45%, and 50%, respectively.

FIGURE 6.6.3 HISTOGRAM OF DTI: FHA LOANS



NOTE: Site-built single-family closed-end FHA originations. The four vertical reference lines represent DTI equal to 43%, 45%, 50%, and 57%, respectively.

Where do we go from here?

- Applicant and loan variation in VA loans, compared to other loan programs.
 - Credit score, CLTV, DTI, and residual income
- Role of non-depository lenders in supplying VA (and FHA) home loans.
 - 75% of VA/FHA originations (Kim et al., 2018)
- How and when did homeownership gap among veterans begin to close?
 - Historical discrimination in home loan programs
 - Legal changes, lenders, geography



Homeownership, Military Service, and the Importance of VA Mortgages

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