Disclaimer

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This document was used in support of a live discussion. As such, it does not necessarily express the entirety of that discussion nor the relative emphasis of topics therein.
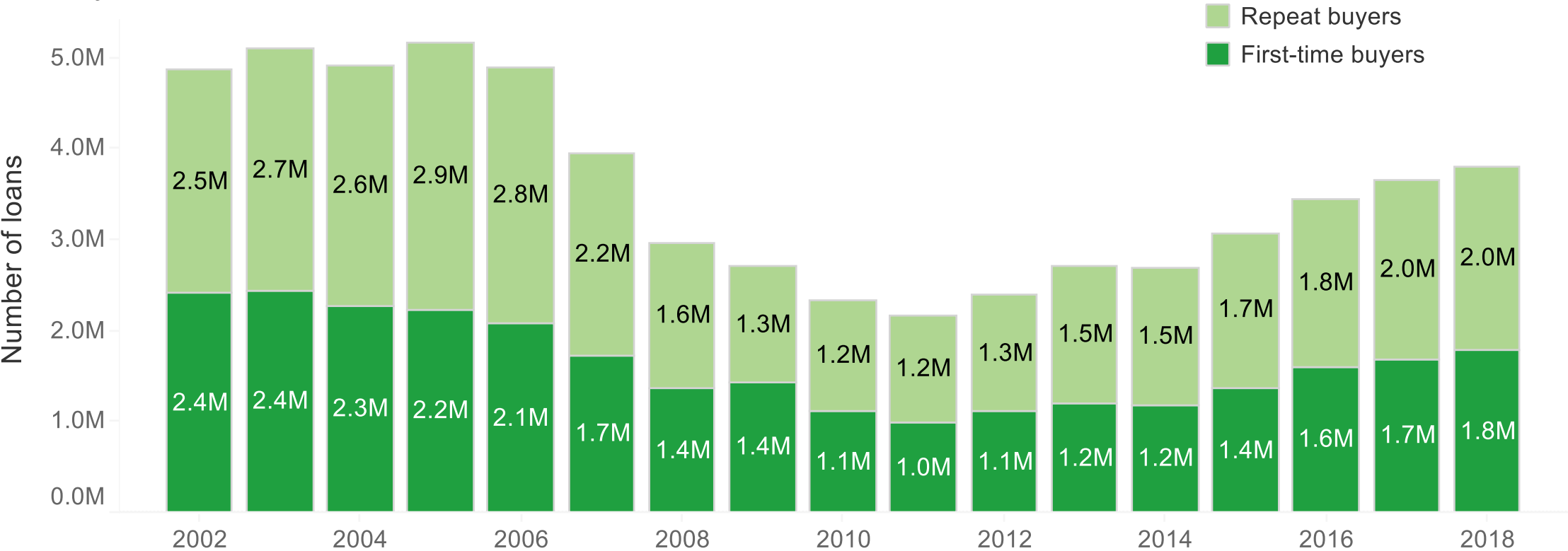
Data

National Mortgage Database (NMDB)

A nationally representative 5 percent sample of all outstanding, closed-end, first-lien, 1–4 family residential mortgages.

- We look at consumers purchasing their first home between 2002 and 2018. We solely analyze home purchasers buying a primary residence.

- First-time homebuyers are defined as borrowers who appear to have no previous mortgage in the preceding seven years. For loans with more than one borrower, our analysis uses the borrower with the longest payment record.

- "Rural" is defined as non-metropolitan counties and "urban" as metropolitan counties according to the USDA 2013 Rural-urban Continuum Codes

Despite rising home prices, first-time buyers still account for approximately half of the home purchase mortgage market
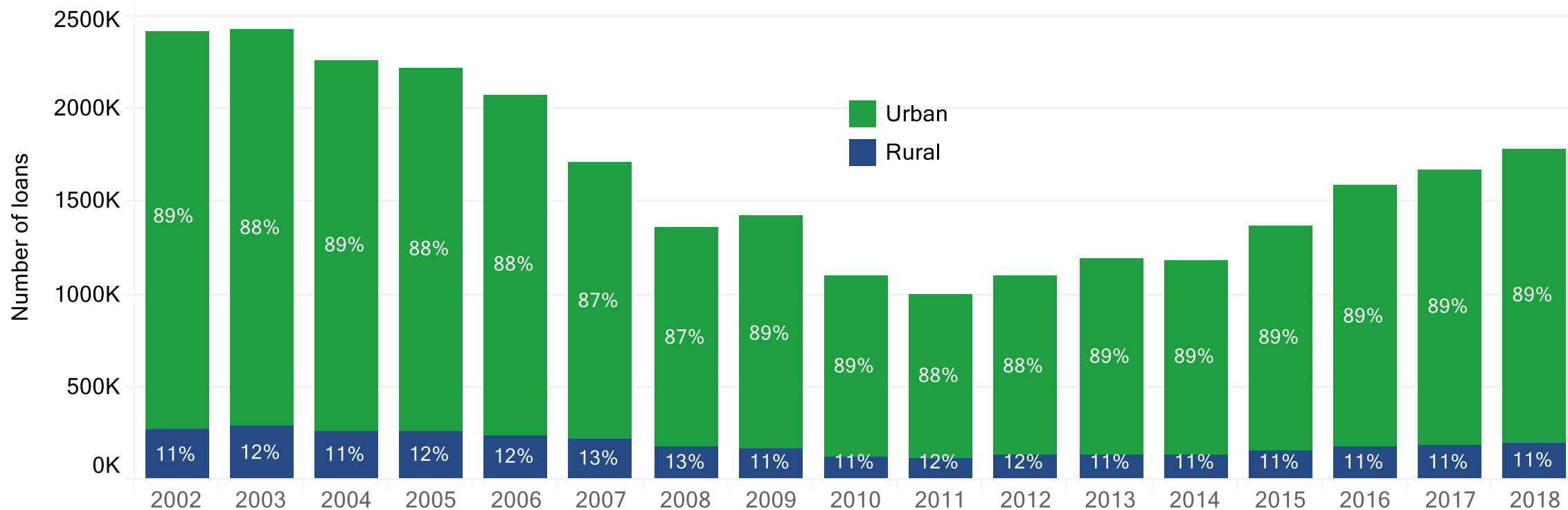
January 2002 - December 2018

National Mortgage Database

FTHB Market Share: Rural and Urban Borrowers

Freddie Mac

January 2002 - December 2018

Number of loans

Legend:
- Urban (green)
- Rural (blue)

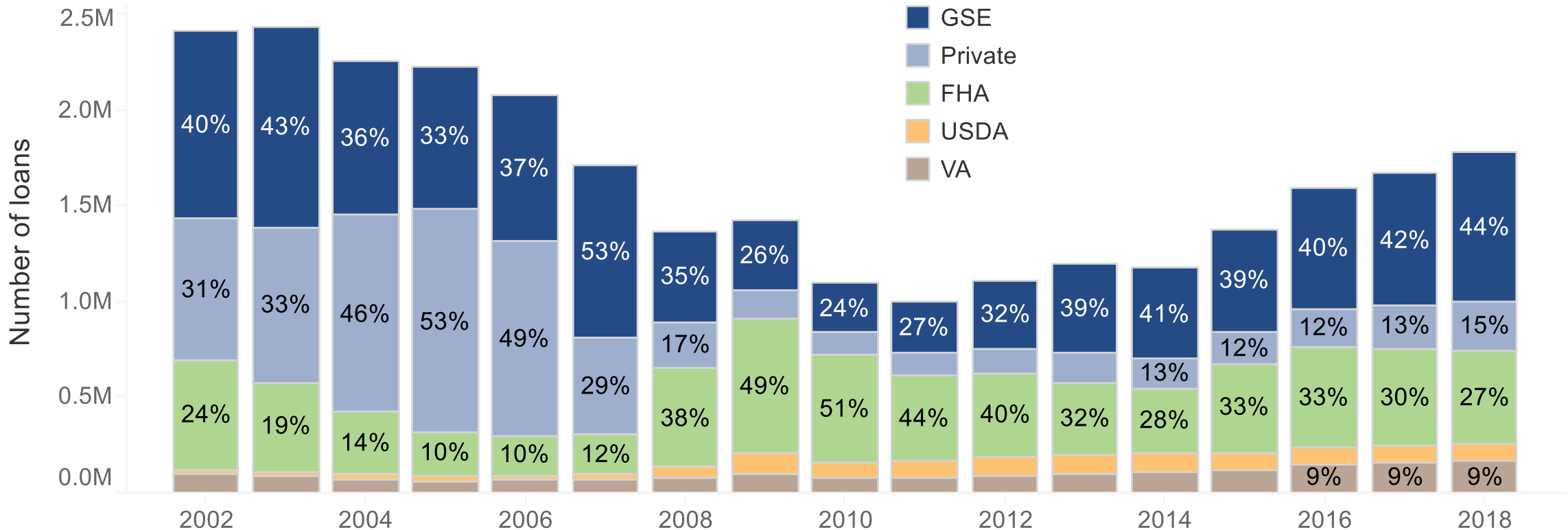| Year	Urban %	Rural %
2002	89%	11%
2003	88%	12%
2004	89%	11%
2005	88%	12%
2006	88%	12%
2007	87%	13%
2008	87%	13%
2009	89%	11%
2010	89%	11%
2011	88%	12%
2012	88%	12%
2013	89%	11%
2014	89%	11%
2015	89%	11%
2016	89%	11%
2017	89%	11%
2018	89%	11%

National Mortgage Database

Loans Originated to Rural FTHB by LoanType

January 2002 - December 2018
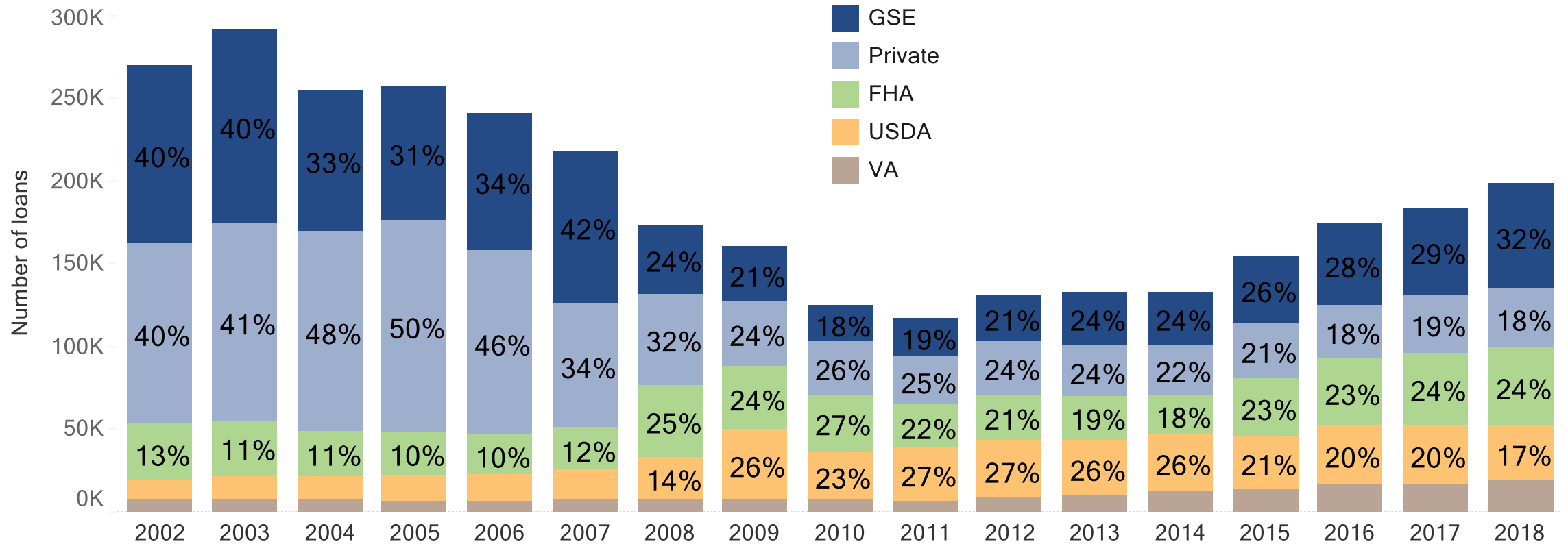
National Mortgage Database

First-time buyers in expensive MSAs have generally been older than in more affordable areas. Post-crisis, the age gap is growing.

Freddie Mac

High Cost MSAs
January 2002 - December 2018
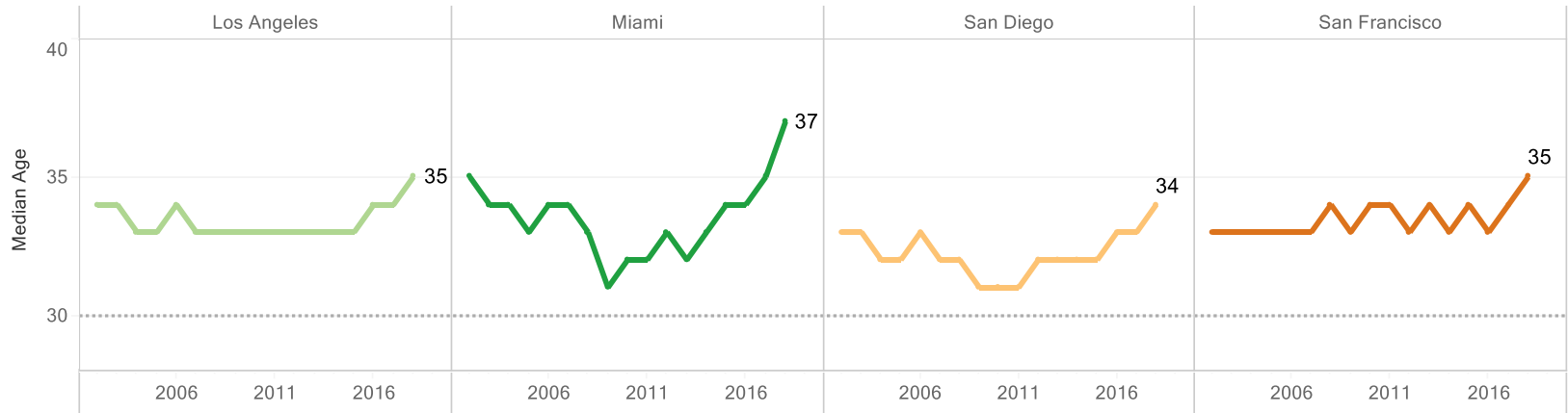
Low Cost MSAs
January 2002 - December 2018
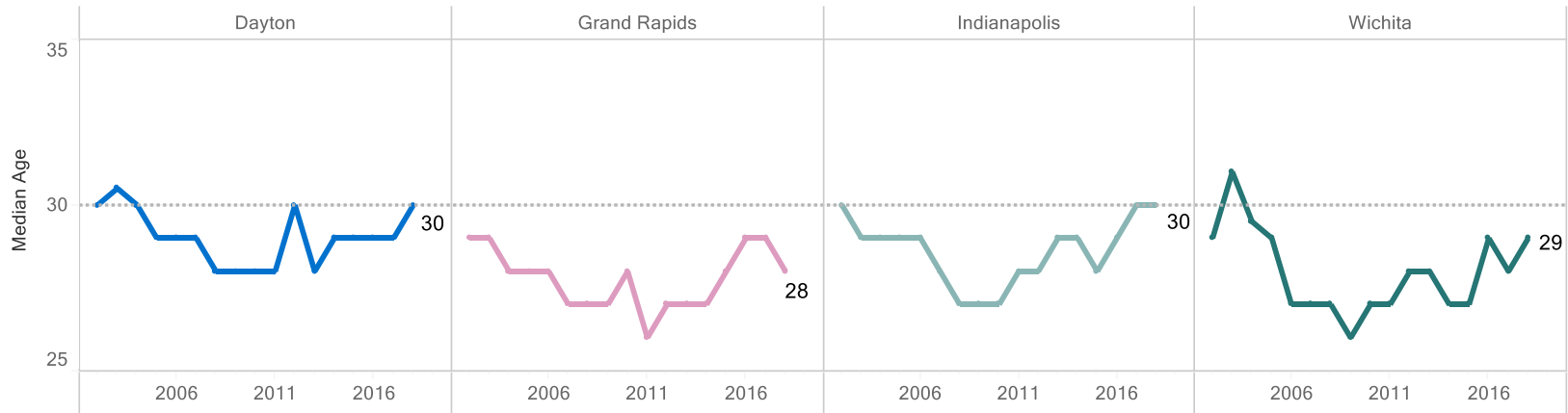
National Mortgage Database
MSAs selected from Housing Opportunity Index list of least and most affordable areas with populations above 500,000.

Despite the accelerated aging of rural areas, rural first-time buyers borrow at similar ages to their urban counterparts

January 2002 - December 2018
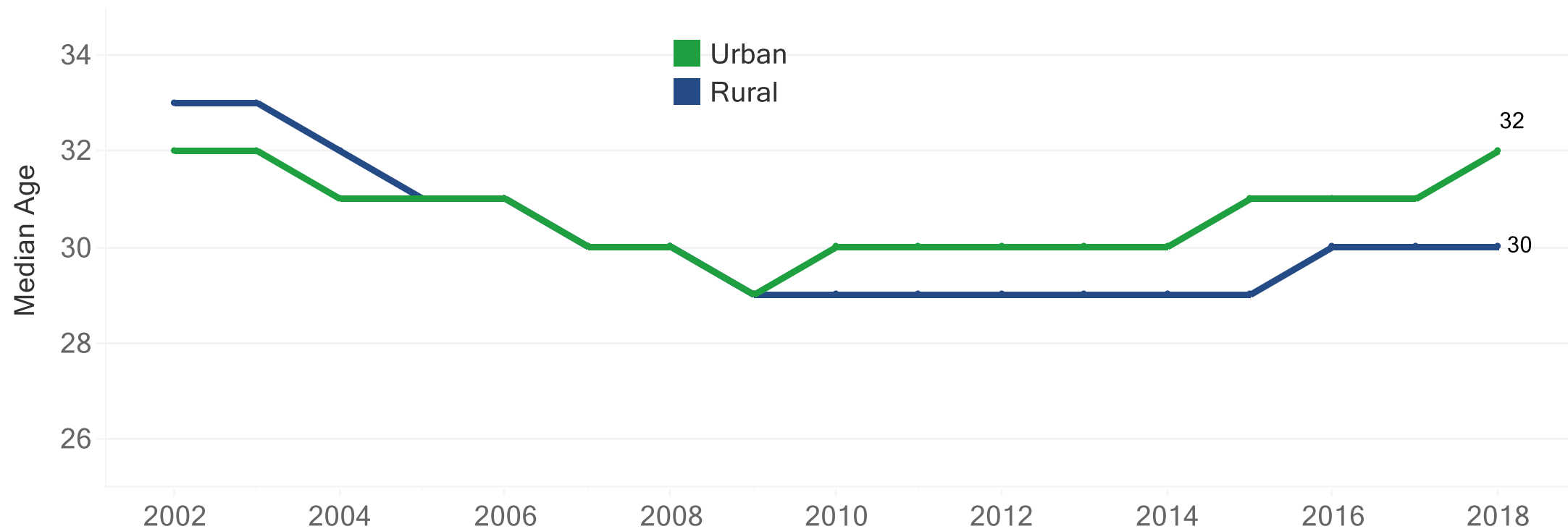
National Mortgage Database

Since 2007, the CLTVs of first-time urban and rural borrowers have converged

Freddie Mac

January 2002 - December 2018
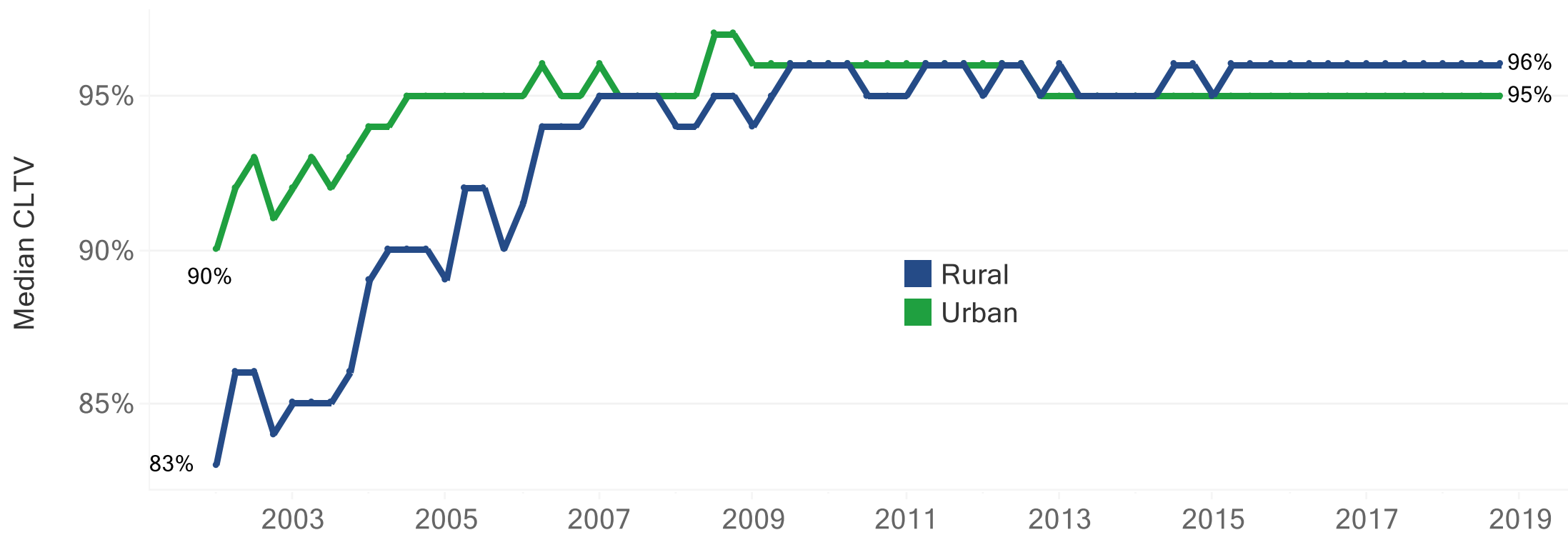
National Mortgage Database

DTIs for rural first-time borrowers remain lower than those for urban buyers

January 2002 - December 2018
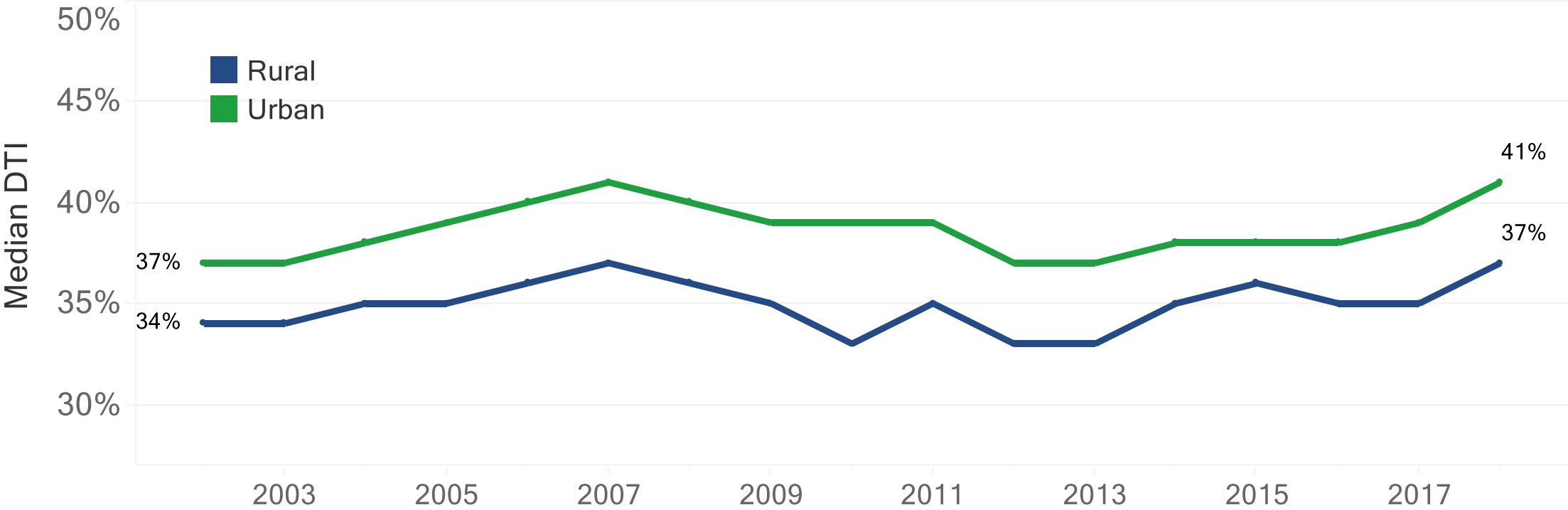
National Mortgage Database

The median credit score of first-time rural borrowers has risen but remains below the median for urban buyers

January 2002 - December 2018

Median Vantage Score

- Rural
- Urban

727

703
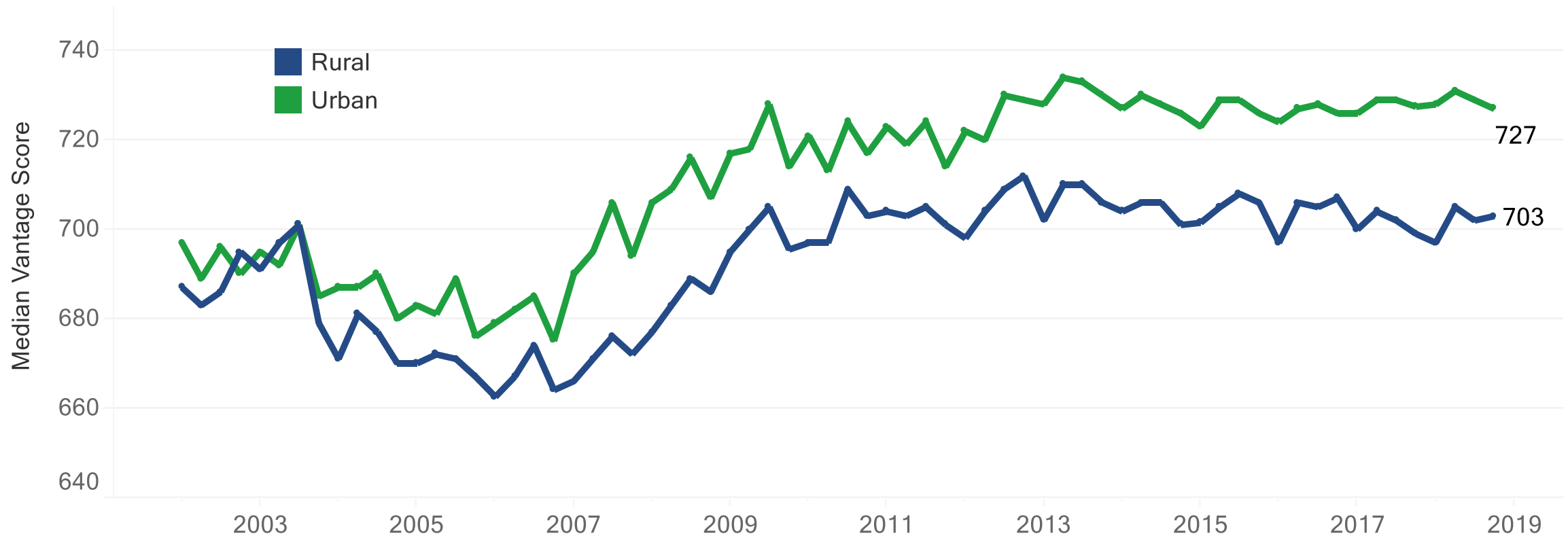
National Mortgage Database

Thank You

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What Can We Learn about the Rural Mortgage Markets Using the New HMDA Data

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

RURAL RESEARCH SYMPOSIUM

FreddieMac

NOV. 9-10 | AN **ALL FOR HOME** EVENT

#RuralResearchSymposium

Agenda

01 Background Information

02 Characteristics of Lenders in Rural Areas

03 Characteristics of Mortgage Borrowers in Rural Areas

04 Characteristics of Mortgages in Rural Areas

05 Conclusion

RURAL RESEARCH SYMPOSIUM

Home Mortgage Disclosure Act (HMDA)

- HMDA is a data collection, reporting, and disclosure statute that was enacted in 1975.

- HMDA data are used to assist in
  - ❑ determining whether financial institutions are serving the housing needs of their local communities;
  - ❑ facilitate public entities' distribution of funds to local communities to attract private investment;
  - ❑ help identify possible discriminatory lending patterns.

- Institutions covered by HMDA are required to annually collect and report specified information on each mortgage application acted upon and purchased during the prior calendar year.

Home Mortgage Disclosure Act (HMDA)

- The Dodd Frank Act (DFA) amended HMDA to require the reporting of 13 new data points.

- The 2015 HMDA Rule
    - ❑ amended Regulation C to include 14 additional data points pursuant to its discretionary authority under the DFA;
    - ❑ revised several preexisting data points;
    - ❑ changed coverage requirements.

- Starting with the data collected in 2018 and reported in 2019, the HMDA data differ significantly from the data in previous years.

- CFPB HMDA Reports available at the Bureau's website:
    https://www.consumerfinance.gov/data-research/research-reports/

Home Mortgage Disclosure Act (HMDA)

Coverage of HMDA in rural areas is limited.

1) Small FIs with origination volume below given thresholds set by the Rule are not required to report.

2) There is a location test in HMDA institution coverage criteria.
   - ❑ On December 31 of the preceding calendar year, the institution must have had a home or branch office in a Metropolitan Statistical Area (MSA).
   - ❑ For non-depository institutions (DI), this is interpreted to mean:
     - ❑ non-DI received applications for, originated, or purchased at least five home purchase loans, home improvement loans, or refinance loans related to property located in the same MSA or Metropolitan Division (MD) in the preceding calendar year.

Rural Markets

- Office of Management and Budget (OMB): metropolitan/micropolitan

- US Department of Agriculture's Urban-Influence Code

- **2013 Rural-Urban Continuum Code**

  - ❑ Ranges between 1 (metro) to 9 (completely rural, not adjacent to metro)

  - ❑ 1 to 3 "Metro"

  - ❑ 4 to 7 "Rural"

  - ❑ 8 to 9 "Completely Rural"

Metro counties:
population size of metro area
- 1 million or more
- 250,000 to 1 million
- Fewer than 250,000

Nonmetro counties:
size of urban population, adjacency
- 20,000 or more, adjacent
- 20,000 or more, nonadjacent
- 2,500 to 19,999, adjacent
- 2,500 to 19,999, nonadjacent
- < 2,500 or completely rural, adjacent
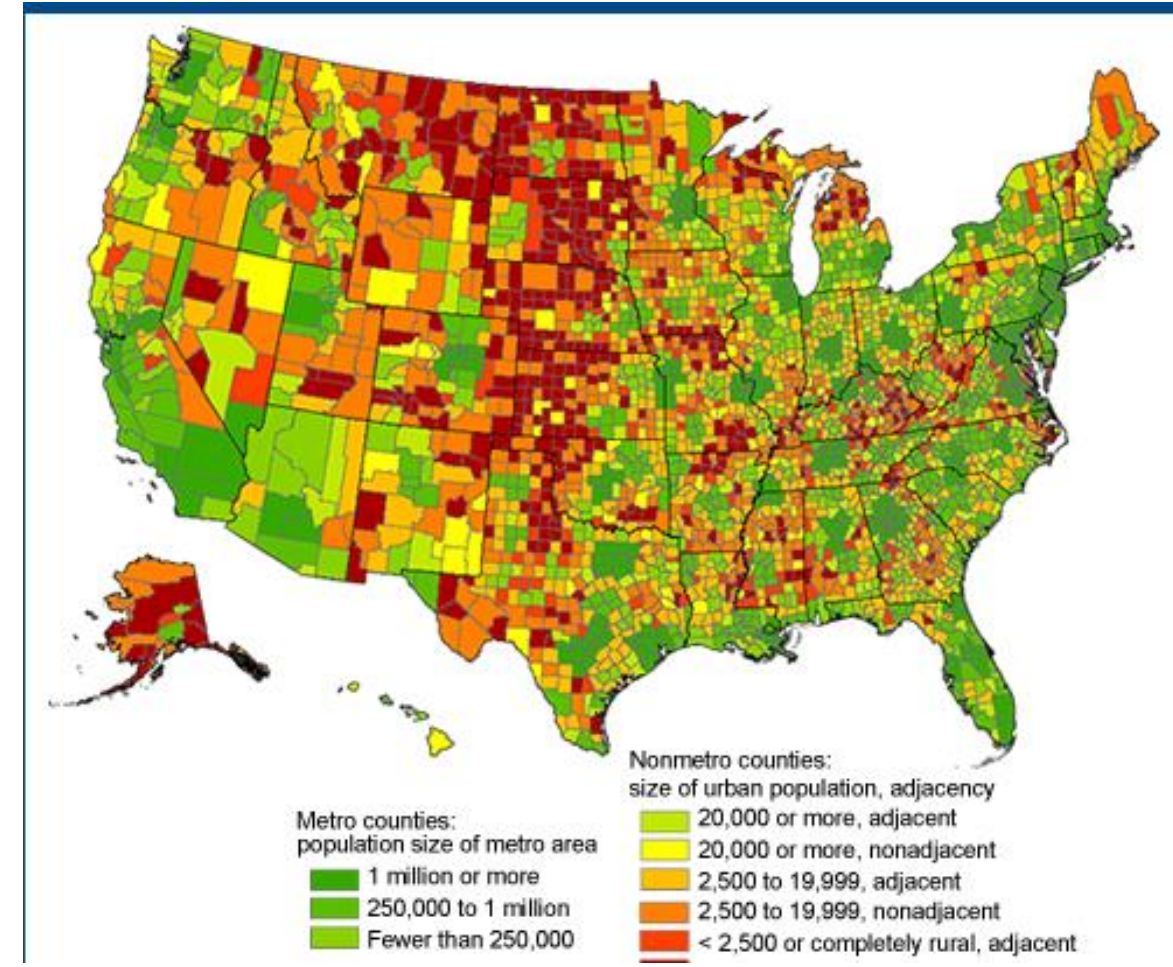
Lenders

Lenders in a rural mortgage market

- Top 10 lenders in **Metro areas**

1. Wells Fargo Bank

2. Quicken Loans

3. JP Morgan Chase

4. Bank of America

5. United Shore Financial Services

6. U.S. Bank

7. Freedom Mortgage Corporation

8. Pennymac Loan Services

9. Caliber Home Loans

10. Loandepot.com

Lenders in a rural mortgage market

- Top 10 lenders in "**Completely Rural**" areas

1. Quicken Loans
2. Wells Fargo Bank
3. 21st Mortgage Corporation
4. U.S. Bank
5. Vanderbilt Mortgage and Finance
6. Pennymac Loan Services
7. Freedom Mortgage Corporation
8. JP Morgan Chase
9. Loandepot.com
10. Truist Bank

Borrowers

Freddie Mac

Characteristics of Mortgage Borrowers

- Rural borrowers
  - Slightly older
    - Avg age of metro borrowers: 46
    - Avg age of CR borrowers: 48

  - less likely to be Black, Hispanic, or Asian

	Metro		Rural		Completely Rural		Total	
	No.	Col %	No.	Col %	No.	Col %	No.	Col %
Asian	537,799	6.3	7,117	0.9	290	0.4	545,206	5.8
Black	632,583	7.4	24,356	3	1,781	2.3	658,720	7
Hispanic	731,654	8.6	28,633	3.5	1,248	1.6	761,535	8.1
Non-Hispanic White	4,781,158	56	613,986	75	60,608	78.4	5,455,752	57.8
Joint	292,861	3.4	20,180	2.5	1,463	1.9	314,504	3.3
Other	75,218	0.9	8,309	1	808	1	84,335	0.9
missing	1,493,568	17.5	115,668	14.1	11,152	14.4	1,620,388	17.2
Total	8,544,841	100	818,249	100	77,350	100	9,440,440	100

Characteristics of Mortgage Borrowers

- Rural borrowers
  - Lower credit scores
    - Avg credit score of metro borrowers: 733
    - Avg credit score in CR borrowers: 727

Credit Score (only originations)
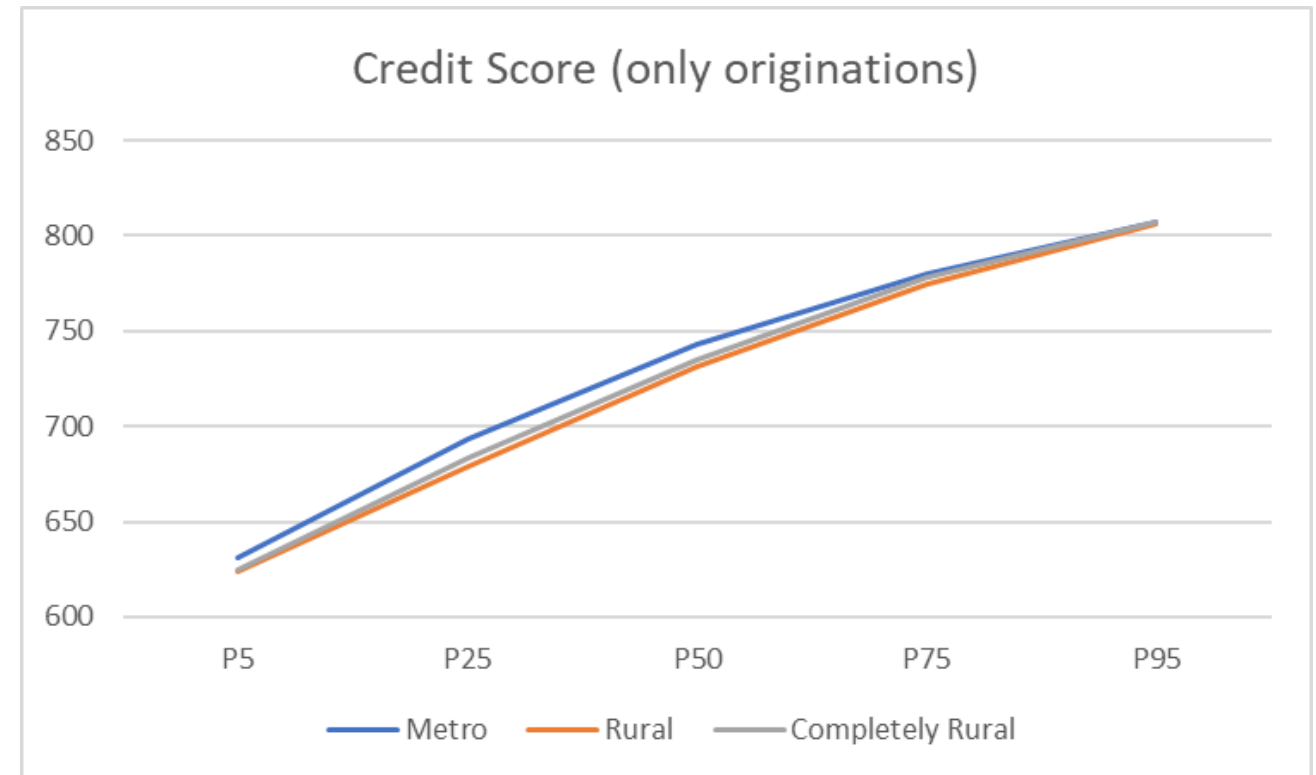
Characteristics of Mortgage Borrowers

- Rural borrowers
  - Lower income
    - Median income of metro borrowers: $91K
    - Median income of CR borrowers: $71K

  - Slightly lower Debt-to-Income (DTI)
    - Avg DTI of metro borrowers: 36%
    - Avg DTI of CR borrowers: 35%

DTI chart showing percentiles P5, P25, P50, P75, P95 on x-axis and values 15–55 on y-axis, with lines for Metro, Rural, and Completely Rural.
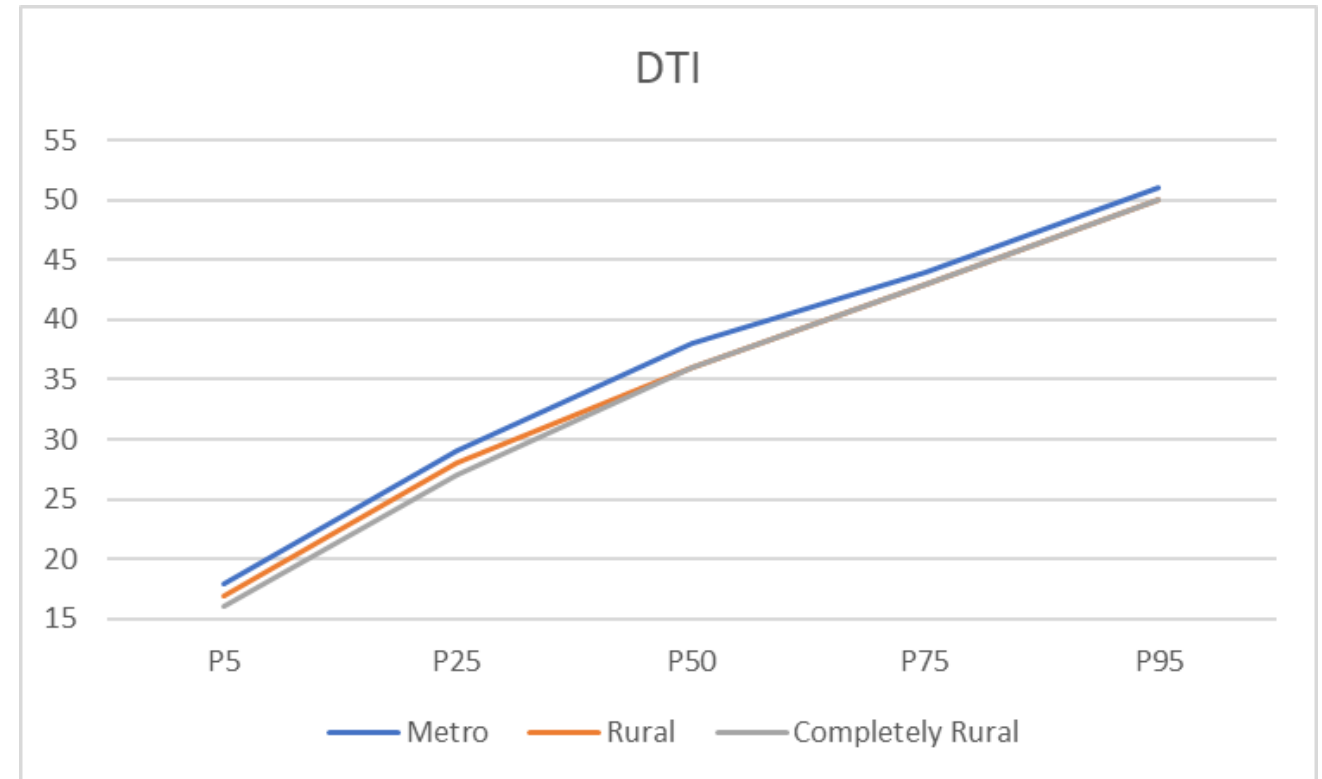
Characteristics of Mortgage Borrowers

- Rural borrowers
  - Similar Combined-Loan-to-Value (CLTV)
    - Avg CLTV of metro borrowers: 79%
    - Avg CLTV of CR borrowers: 79%

CLTV

Metro — Rural — Completely Rural
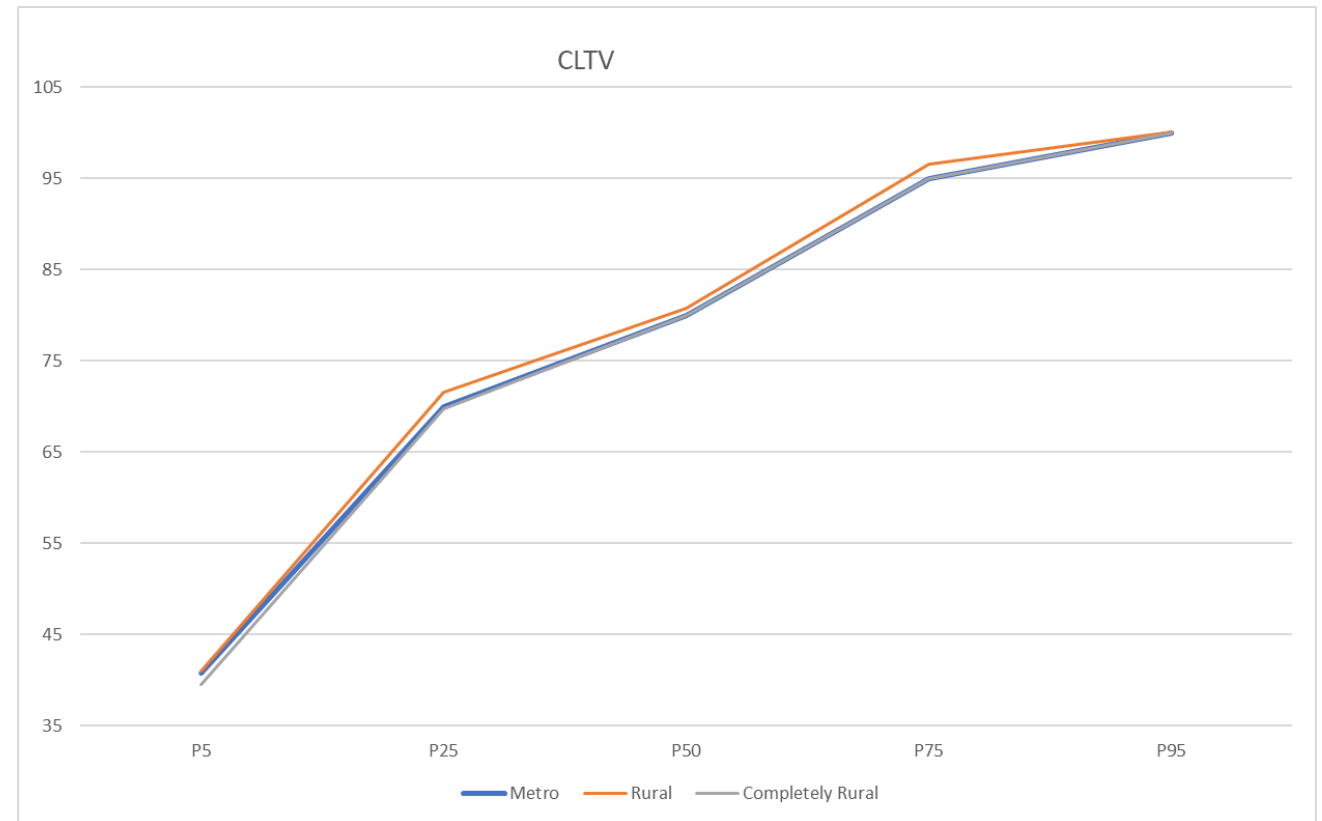
Characteristics of Mortgage Borrowers

- Rural borrowers
  - More likely to be denied

	Origination		Approved, not Accepted		Denied		Total
	No.	Row %	No.	Row %	No.	Row %	No.
Metro	6,982,481	81.7	262,565	3.1	1,299,795	15.2	8,544,841
Rural	646,407	79	25,049	3.1	146,793	17.9	818,249
Completely Rural	58,735	75.9	2,466	3.2	16,149	20.9	77,350
Total	7,687,623	81.4	290,080	3.1	1,462,737	15.5	9,440,440

Characteristics of Mortgage Borrowers

$$Denial = Rural + Completely\ Rural + X_i + e_i$$

(1) No controls

(2) **Applicant/Borrower and Property Characteristics** (credit score, CLTV, DTI, income, occupancy type, loan amount, lien status)

(3) **(2)** + **Loan Characteristics** (loan type, loan purpose, loan term, fixed rate, balloon payment, interest only payment, negative amortization, other non-amortizing features, AUS result)

	(1)	(2)	(3)
Rural	0.027***	0.009***	0.007***
	(0.000)	(0.000)	(0.000)
Completely Rural	0.057***	0.030***	0.025***
	(0.001)	(0.001)	(0.001)
N	9,440,440	9,440,440	9,440,440

Mortgages

Freddie Mac

Characteristics of Mortgages

- Mortgages in Completely Rural areas
  - Higher shares of conventional conforming & RHS/FSA loans
  - Lower shares of conventional jumbo & FHA loans

LOAN TYPES BY METRO STATUS

■ Conventional Conforming ■ Conventional Jumbo ■ FHA ■ VA ■ RHS/FSA

	METRO	RURAL	COMPLETELY RURAL
RHS/FSA	0.9	5.1	4.6
VA	10.4	11.8	10.9
FHA	14.4	15	12.7
Conventional Jumbo	5.5	2.5	2.4
Conventional Conforming	68.9	65.6	69.5

Characteristics of Mortgages

	Originations	Mean Loan Amount		Median Loan Amount		Home Purchase	Refinance	First Lien
Metro	6,982,481	$	292,932	$	240,242	55%	43%	96%
Rural	646,407	$	195,452	$	159,000	61%	37%	96%
Completely Rural	58,735	$	188,750	$	150,100	60%	38%	97%
Total	7,687,623	$	283,940	$	232,193	55%	43%	96%

- Loan amount is lower.

Characteristics of Mortgages

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Completely Rural	58,735	$ 188,750	$ 150,100	60%	38%	97%
Total	7,687,623	$ 283,940	$ 232,193	55%	43%	96%

- Share of home purchase loans is slightly higher.

Characteristics of Mortgages

|	Originations	Mean Loan Amount	Median Loan Amount	Home Purchase	Refinance	First Lien
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Total	7,687,623	$ 283,940	$ 232,193	55%	43%	96%

- Share of refinance loans is slightly lower.

Characteristics of Mortgages

	Originations	Mean Loan Amount	Median Loan Amount	Home Purchase	Refinance	First Lien
Metro	6,982,481	$ 292,932	$ 240,242	55%	43%	96%
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Completely Rural	58,735	$ 188,750	$ 150,100	60%	38%	97%
Total	7,687,623	$ 283,940	$ 232,193	55%	43%	96%

- Shares of first lien mortgages are similar across geographic areas.

Characteristics of Mortgages
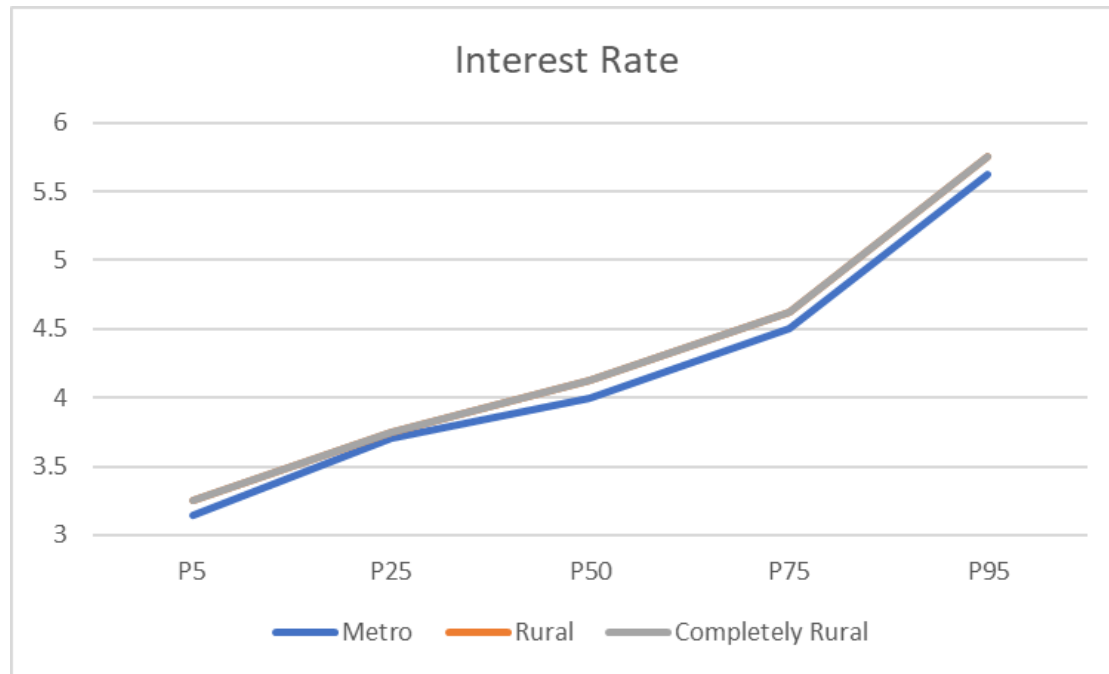
Interest Rate

Mortgages in rural areas have slightly higher interest rates.

- Median interest rate in metro: 4.000
- Median interest rate in CR: 4.125

Characteristics of Mortgages

- Mortgages in rural areas

  – Less likely to be a 30-year term

  – Slightly more likely to be an Adjustable-rate mortgage (ARM)

  – Higher share of balloon or interest-only payments

  – Much more likely to be secured by manufactured homes

  – Total loan costs per $1000 are higher

Loan costs per $1,000

Metro — Rural — Completely Rural
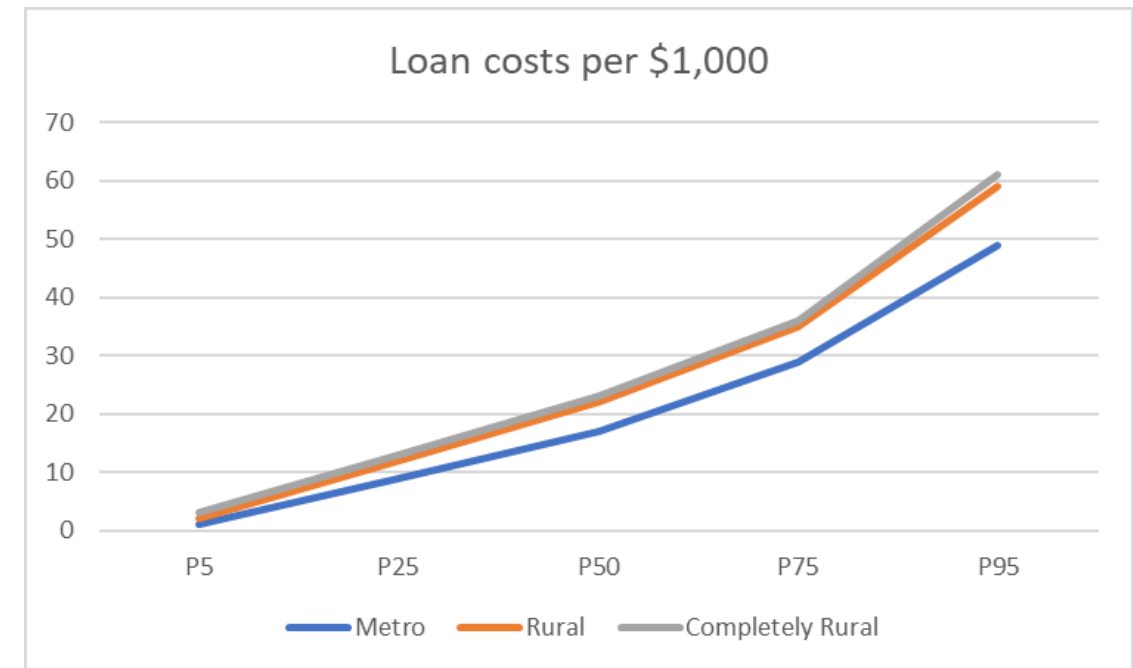
Conclusion

Rural borrowers

1. denied at higher rate.

2. pay higher interest rate.

3. pay higher loan costs per $1,000.

Borrowers' credit or loan characteristics that we haven't explored may explain the discrepancy.

Thank You

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Objectives/Research Questions

The ongoing pandemic has led to renewed interest in mobility - with movement of people away from city centers to the suburbs and rural areas.

- What was happening prior to the pandemic?

- Were we witnessing similar trends of movement away from urban areas to suburbs and rural areas?

We answer these questions by looking at home purchases – comparing home purchases in rural areas versus urban and suburbs. In doing so, we also address the following questions:

- Where have home purchases increased over the last 10 years: rural/urban/suburbs?

- What are the characteristics of the rural borrowers?

- How have these characteristics changed over the last 10 years?

- How do these characteristics affect the probability of purchasing a home in a rural area?

Data

We utilize a new HUD classification to answer these questions.

- *UPSAI*: Rural/Urban/Suburban classification based on analysis by "*Shawn Bucholtz, Emily Molfino and Jed Kolko: The Urbanization Perceptions Small Area Index: An Application of Machine Learning and Small Area Estimation to Household Survey Data*" *

HMDA 2010 & 2019 data
- Single Family, Purchase, Owner-Occupied, Originated, First Lien Mortgage Loans

*(https://www.huduser.gov/portal/AHS-neighborhood-description-study-2017.html#small-area-tab)

Urbanization Perceptions Small Area Index (UPSAI)

Urbanization Perceptions Small Area Index (UPSAI)

- HUD uses the data collected in the 2017 AHS on the question of 'How do you perceive your neighborhood?'.

- Use this data collected to build a model which identifies the characteristics of each of these areas defined as rural, urban and suburban.

- They then apply these characteristics to all the ACS census tracts based on the regional and neighborhood characteristics to define a census tract as rural/urban/suburban.

Percent describing their neighborhood as	
Urban	27%
Suburban	52%
Rural	21%

Explanatory variables for UPSAI

	UPSAI Predicted Class		
	Urban	Suburban	Rural
Population density	6,059	2,371	59
Housing density	2,596	972	28
Share of Hispanic	12.8%	7.9%	2.7%
Share of Non-Hispanic Black	10.0%	3.7%	0.8%
Share of Non-Hispanic Asian	1.8%	2.6%	0.2%
Share of Other Race	42.4%	76.8%	93.6%
Median income	$40,950	$65,777	$52,079
Share 55 and over	23.3%	28.6%	33.1%
Share 25 to 39	22.2%	18.9%	16.0%
Share 18 to 24	9.7%	7.9%	7.3%
Median Year Built	1957	1977	1980
Share of commuters not using a car	16.2%	9.3%	7.6%
Business density	194	67	2
Employment density	1,616	513	9

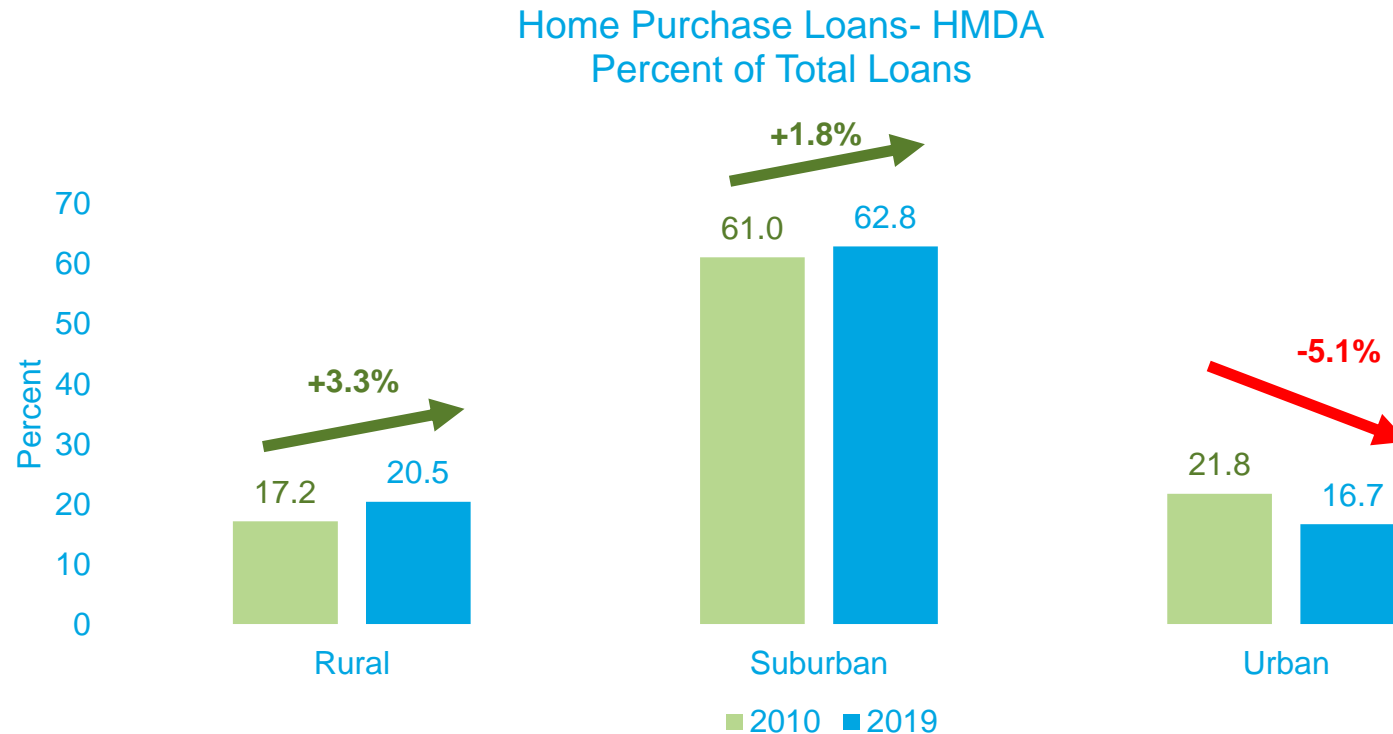Source: Kolko et al., 2020

Washington DC
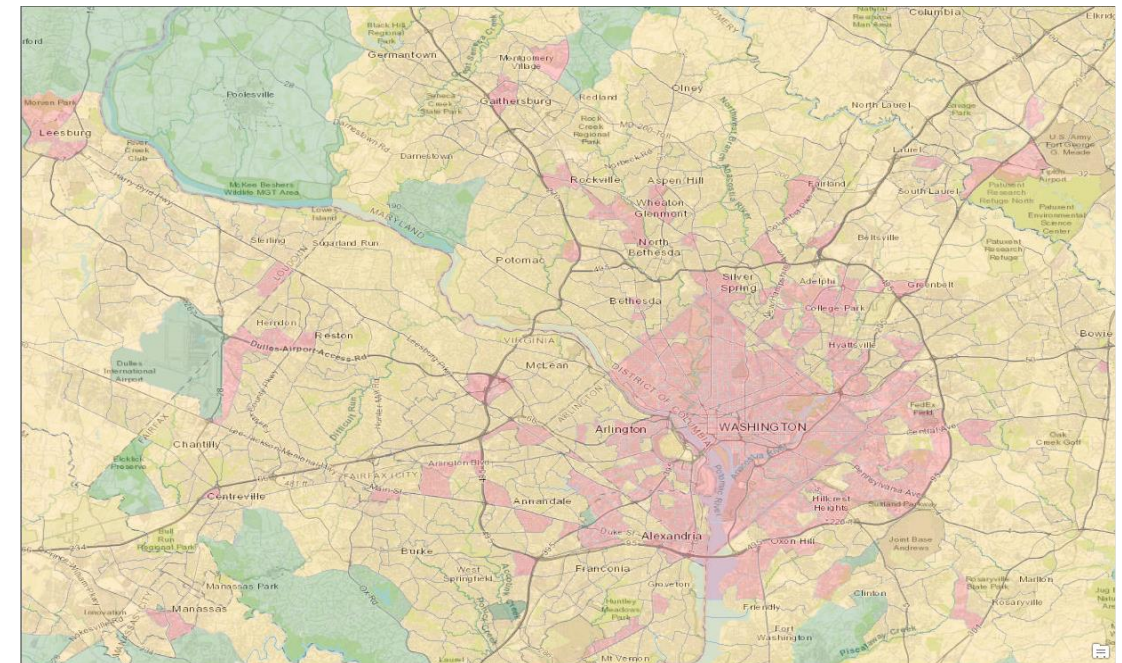
Note: Urban Suburb Rural

Home purchases in rural areas increasing even prior to the pandemic

Share of home purchases in rural tracts increased the most over the period between 2010-2019.
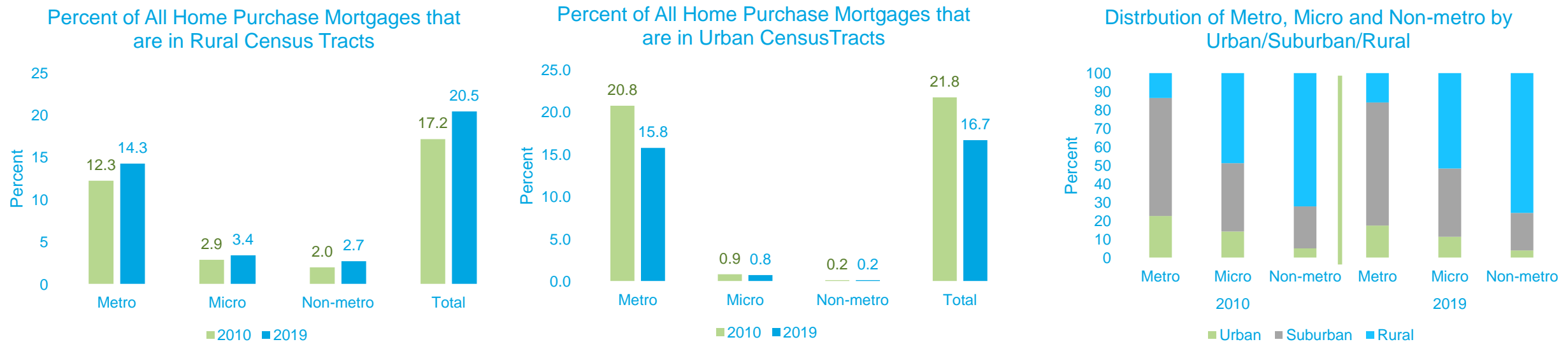
- Nearly 3/5th of home purchase loans were in suburban census tracts.

- The share in rural tracts increased from 17 percent in 2010 to 21 percent in 2019, while the share in urban tracts declined from 22 percent in 2010 to 17 percent in 2019.

Home Purchase Loans- HMDA
Percent of Total Loans

Bar chart showing Percent of Total Loans by area type for 2010 and 2019.

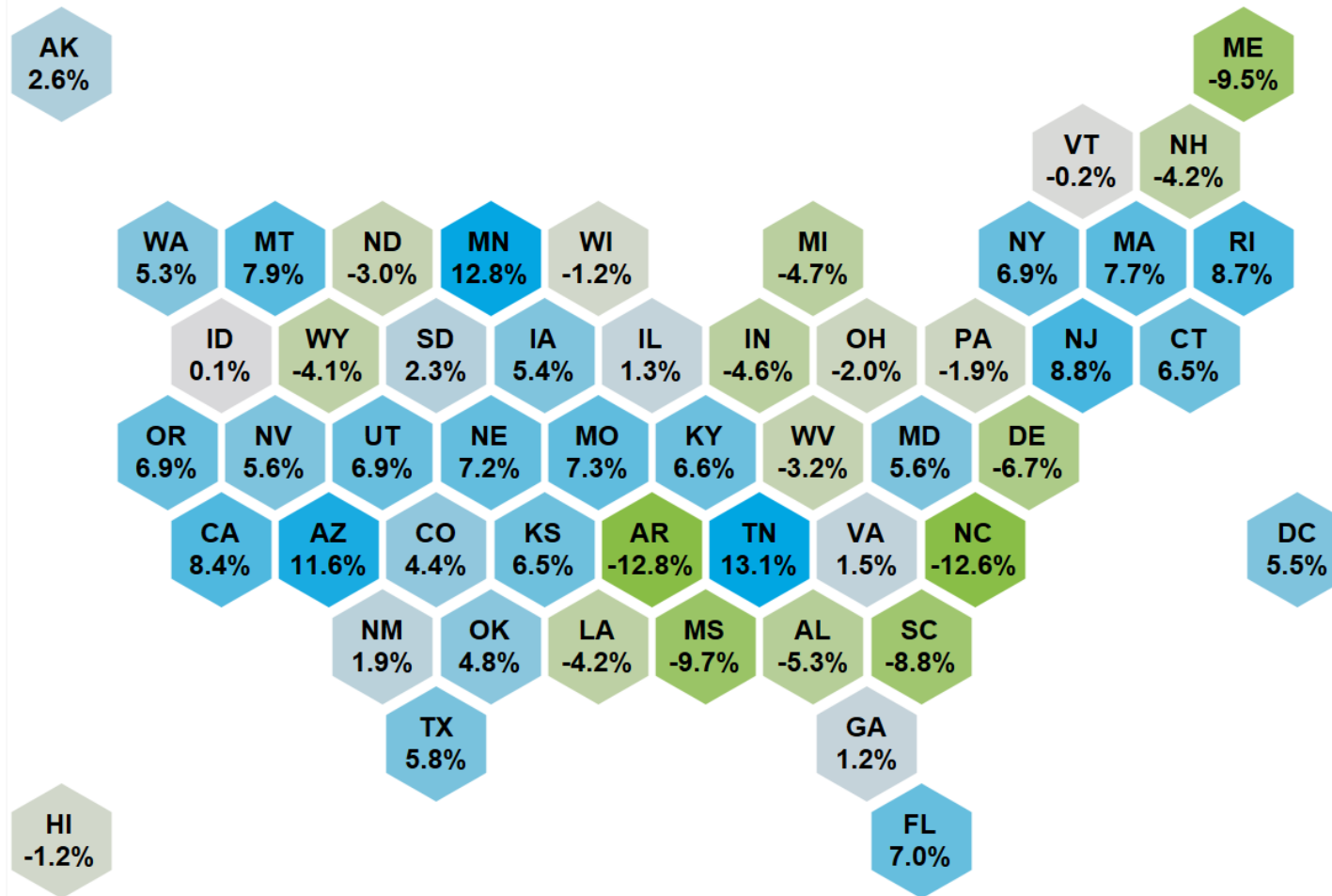|	Rural	Suburban	Urban
2010	17.2	61.0	21.8
2019	20.5	62.8	16.7
Change	+3.3%	+1.8%	-5.1%

Rural census tracts within Metros witnessed most increase in home purchase loans

Increase in rural areas a within metro shift: Rural areas within Metros witnessed increased home purchase loans while urban areas within Metros witnessed declines.

- In 2010, 17% of home purchase loans in rural, with 12% in Metropolitan Statistical Areas, 3% in Micropolitan Statistical Areas & remaining 2% in non-metro areas. In 2019 the rural share increased to 20.5%, with most of that increase coming from metro areas.

Percent of All Home Purchase Mortgages that are in Rural Census Tracts

Percent of All Home Purchase Mortgages that are in Urban CensusTracts

Distrbution of Metro, Micro and Non-metro by Urban/Suburban/Rural

Change in share of loans in rural areas between 2010 & 2019

Top 5 States with Increases in Rural Share of Total Loans
- Tennessee
- Minnesota
- Arizona
- New Jersey
- California

Bottom 5 States with Increases in Rural Share of Total Loans
- Arkansas
- North Carolina
- Mississippi
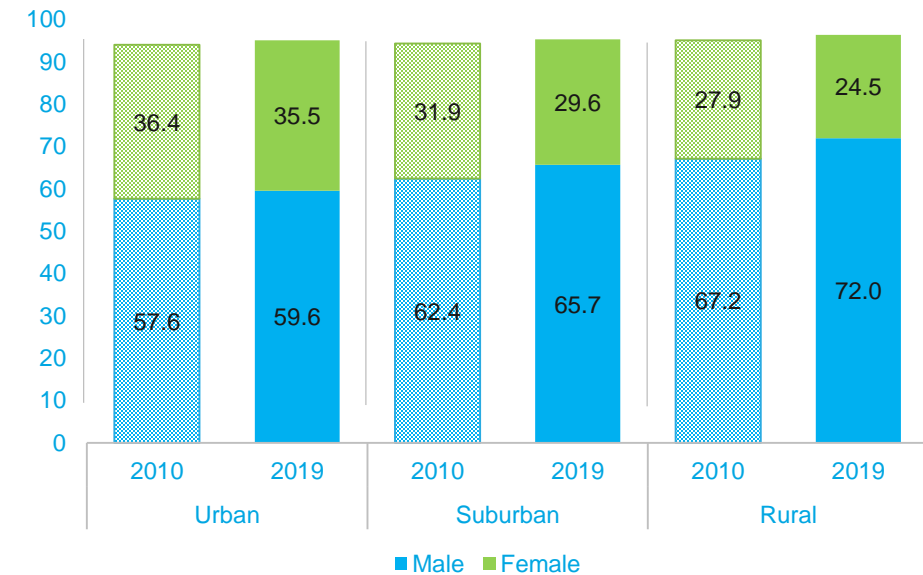- Maine
- South Carolina

Demographic Attributes of Borrowers in Rural Areas

- Age: Borrowers in urban areas skewed younger than in rural areas

- Gender of primary borrower: Share of Female borrowers in rural areas is lower than in urban and suburban areas

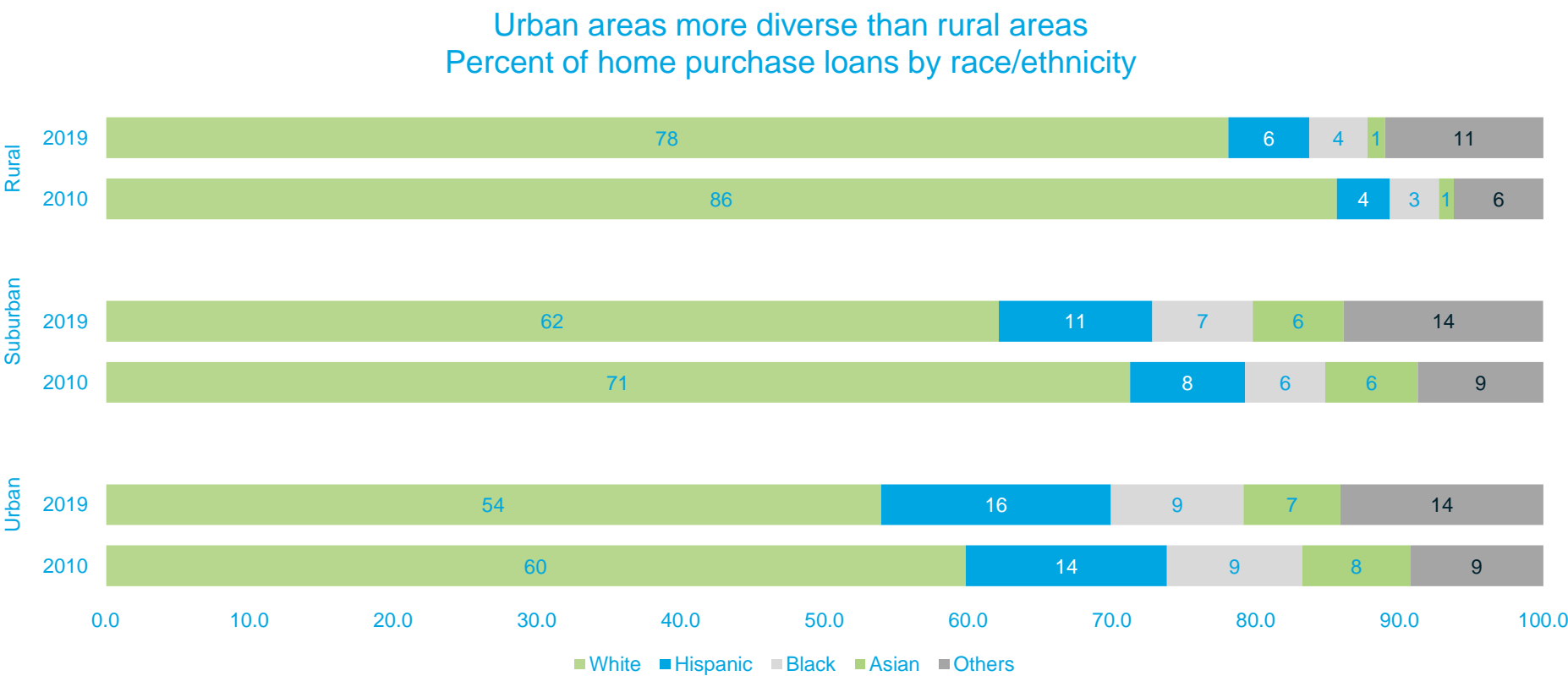Distribution by Age Within the Area- 2019
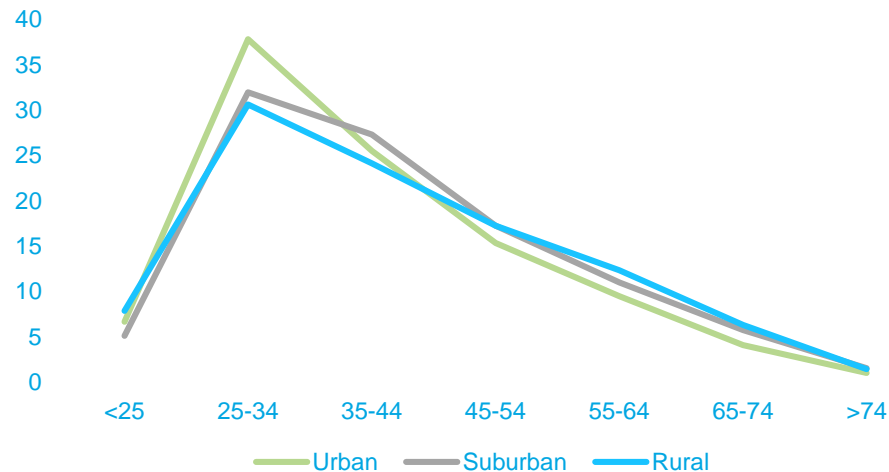
Distribution by Gender

Rural areas less diverse than urban and suburban areas

Borrowers in the rural areas are less diverse than the urban and suburban areas

Urban areas more diverse than rural areas
Percent of home purchase loans by race/ethnicity

Area	Year	White	Hispanic	Black	Asian	Others
Rural	2019	78	6	4	1	11
Rural	2010	86	4	3	1	6
Suburban	2019	62	11	7	6	14
Suburban	2010	71	8	6	6	9
Urban	2019	54	16	9	7	14
Urban	2010	60	14	9	8	9

■ White ■ Hispanic ■ Black ■ Asian ■ Others

# Higher LTV, Lower DTI characterize borrowers in Rural areas

- Loan to Value: Share of loans with LTV<=80 lowest in the rural areas

- Debt-to-Income: Share of loans with DTI <= 43 highest in rural areas

- Purchase Value: Purchase values lowest in rural Areas

	Description	2019		
		Urban	Suburban	Rural
LTV	Share of LTV<=80 in the area	32.1	33.8	28.7
DTI	Share of DTI<=43 in the area	72.4	70.5	73.9

Purchase Value (2019 $)

	Urban	Suburban	Rural
('000s)	370	357	266
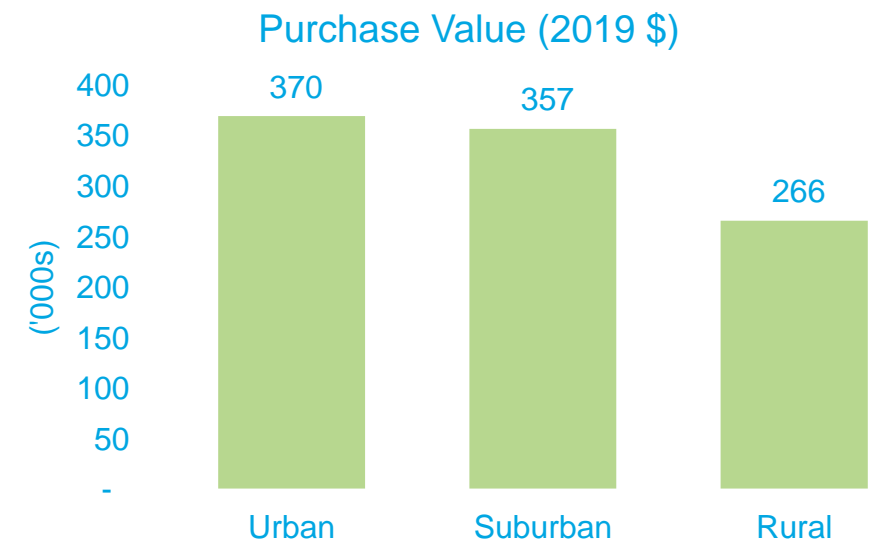
Rural areas have lowest median incomes and lowest loan amounts

- Median incomes increased most in urban areas over the period from 2010 to 2019.

- Average loan amounts also increased most in urban areas between 2010 & 2019. Rural areas had the lowest.

Median Income in 2019 dollars ('000s)

Average Loan Amounts (2019 $)
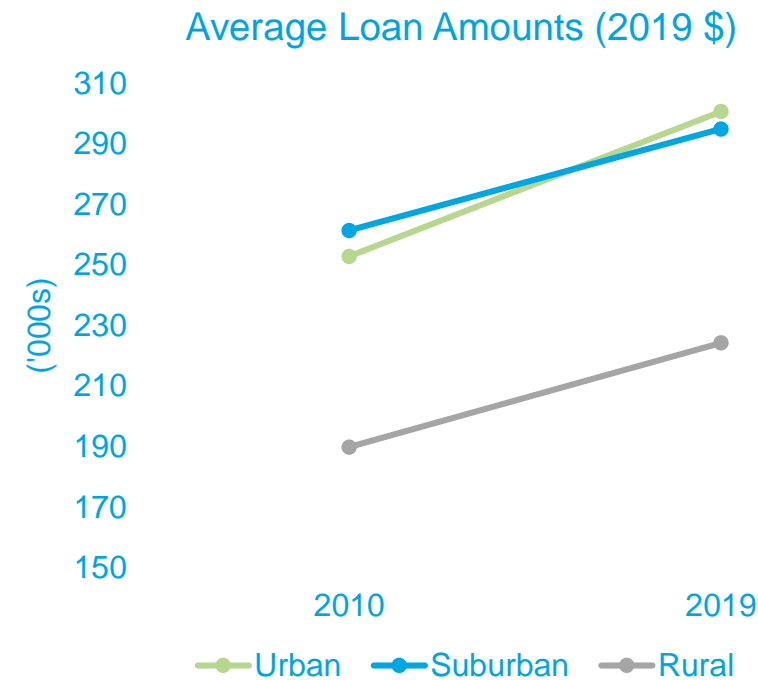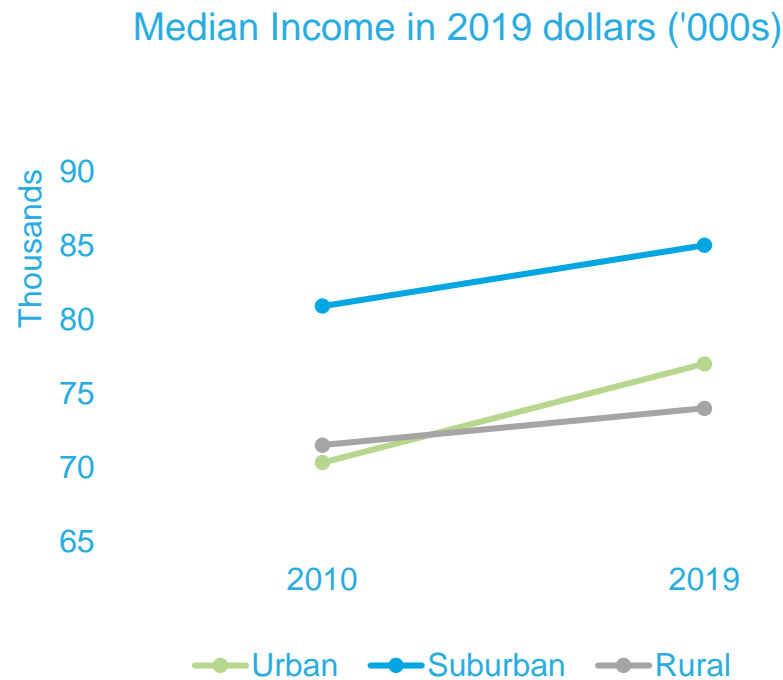
Mortgage rates are higher for loans in rural areas

- Interest rates on purchase loans in rural areas around 15 bps higher than in urban areas for all conventional loans

		2019		
	Description	Urban	Suburban	Rural
Interest Rate	Conventional loans 30 year, LTV<80 and DTI<43	4.02	4.05	4.17
Interest Rate – Site Built	Conventional loans 30 year, LTV<80 and DTI<43	4.00	4.05	4.17
Interest Rate – Manufactured Homes	Conventional loans 30 year, LTV<80 and DTI<43	4.58	4.59	4.66

Conventional Purchase Loans share increasing

Freddie Mac

- Conventional Purchase Loans in Rural Areas increased between 2010 & 2019

Loan Type	2010			2019		
	Urban	Suburban	Rural	Urban	Suburban	Rural
Conventional	46.5	48.9	49.7	69.2	68.0	61.5
FHA	46.9	41.5	31.5	22.1	19.7	19.7
FSA/RHS	1.4	2.2	8.4	1.2	1.6	6.5
VA	5.2	7.3	10.4	7.5	10.8	12.3
Total	100	100	100	100	100	100

Linear Probability Model also supports the rural characteristics

Linear Probability model suggests that in 2019 * :

- A one percent increase in income decreases the likelihood of purchasing a home in rural area by around 1.6%

- As compared to other non-Hispanic races, Whites are more likely to make rural home purchases while Blacks, Asian and Hispanics are less likely to make rural home purchases.

- A manufactured home has more likelihood of being in rural areas as compared to site built homes.

- As compared to non-metros, metros and micropolitan areas have fewer rural home purchases.

- A rural home purchase in the Northeast, Mid-west and South is more likely than in the West

* Dependent Variable: Rural -1/0

VARIABLES	(1) 2010	(2) 2019
lninc	-0.0183***	-0.0162***
	(0.000425)	(0.000293)
white_nh	0.0506***	0.0469***
	(0.000977)	(0.000560)
black_nh	-0.0548***	-0.0546***
	(0.00132)	(0.000780)
asian_nh	-0.0592***	-0.0761***
	(0.00108)	(0.000699)
hispanic	-0.0524***	-0.0525***
	(0.00118)	(0.000814)
manufactured	0.367***	0.342***
	(0.00252)	(0.00140)
metro	-0.519***	-0.537***
	(0.00229)	(0.00120)
micro	-0.209***	-0.218***
	(0.00279)	(0.00151)
ne	0.0479***	0.0540***
	(0.000801)	(0.000615)
mw	0.0371***	0.0293***
	(0.000822)	(0.000559)
south	0.0817***	0.0809***
	(0.000757)	(0.000472)
Constant	0.661***	0.694***
	(0.00311)	(0.00186)
Observations	1,431,887	3,790,331
R-squared	0.156	0.158
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Conclusion

- **Trend of movement away from urban areas to suburbs and rural areas prevalent even prior to the pandemic.**

  – Rural Home Purchases accounted for almost 1/5th of home purchases in 2019. And had experienced the most increase as compared to 2010

  – Borrower attributes differ between Urban and Rural borrowers:

    - Rural borrowers mostly 55+, Male borrowers
    - Rural borrowers show less diversity, though improvement as compared to 2010.
    - LTV highest in Rural areas; DTI lowest
    - Interest rate in Rural areas higher than in urban and suburban

Thank You

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"Market Snapshot: First-time Homebuyers" (K. Wong and L. Herman)

- Summary
  - Compare the loan and borrower characteristics of First-Time Homebuyers (FTHB) in rural/urban areas over time using National Mortgage Database
  - Rural/Urban defined using USDA 2013 Rural-urban Continuum Codes
  - Rural FTHBs are around 11-13 percent of total FTHBs
  - Compared to urban FTHBs, rural FTHBs are
    - More likely to use USDA, Private securitization for financing
    - Similar in ages and have similar CLTVs
    - More likely to have lower median debt-to-income and lower median credit score

- Comments
  - Further break down of rural FTHB
    - Race/Ethnicity
    - Property type: manufactured housing less likely to be prevalent in rural FTHB
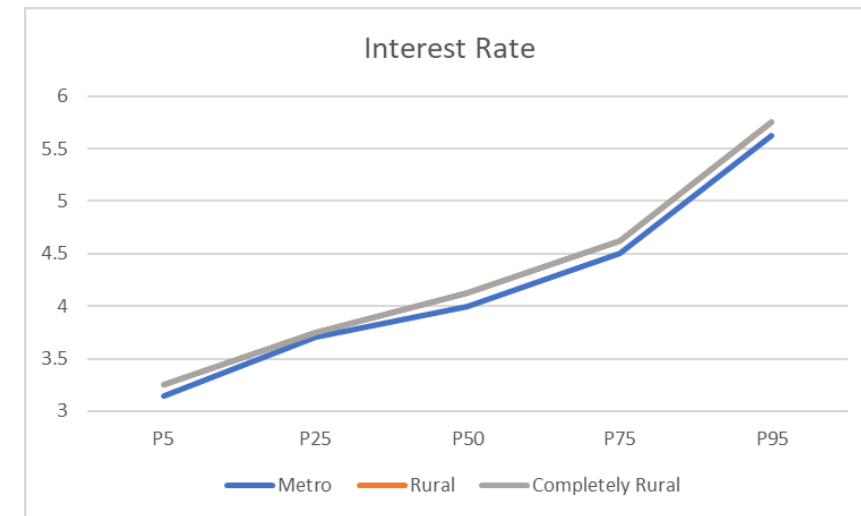
- Summary

  – Investigate lenders, loan and borrower characteristics in metro/rural areas using *non-public* HMDA 2019

  – "Metro", "Rural" and "Completely Rural" defined using USDA 2013 Rural-urban Continuum Codes

  – "Completely Rural" borrowers likely to

    - Be older, less diverse, with lower income, lower debt-to-income
    - Have lower credit scores and more likely to be denied of mortgages
    - Rely on conventional conforming & RHS/FSA loans for financing
    - Have lower median loan amount, lower terms of maturity, lower interest rate, and higher cost per $1,000

- Comments
  - Reasons for high denial rate?
  - Geographic controls to capture heterogeneity in rural counties
  - Will be helpful to further breakdown conventional conforming loans in rural (GSE/ retained portfolio/private securities)
  - To what extent higher mortgage rate in rural counties explained by loan and borrower characteristics?

	(1)	(2)	(3)
Rural	0.027***	0.009***	0.007***
	(0.000)	(0.000)	(0.000)
Completely Rural	0.057***	0.030***	0.025***
	(0.001)	(0.001)	(0.001)
N	9,440,440	9,440,440	9,440,440

Interest Rate

"Home Purchases in Rural Areas: An Analysis of HMDA data" (R. Yanamandra)

Freddie Mac

- Summary

  – Analyzes the trends in home purchases and characteristics of rural borrowers using *public* HMDA 2010 & 2019

  – Urban/Suburban/Rural classification based on HUD's Urbanization Perceptions Small Area Index (UPSAI) at tract-level

  – Home purchase in rural tracts increased over 10 years, including those within metro areas

  – Borrowers in rural areas are more likely to

    - Be younger, male, less diverse, with lower income
    - Have higher loan-to-value, lower debt-to-income, lower loan amount
    - Have higher interest rate

- Comments
  - Perception based classification
    - Pros: relevant to study the impact of pandemic in suburban/rural areas
    - Cons: challenging to study trends over longer time span
  - Coverage: what percent of rural tracts did not have a match in HMDA?
  - Will be helpful to further breakdown conventional loans in rural in 2010 & 2019 (GSE/retained portfolio/private securities)

Loan Type	2010			2019		
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VA	5.22	7.26	10.4	7.5	10.8	12.3
Total	100	100	100	100	100	100

Thank You