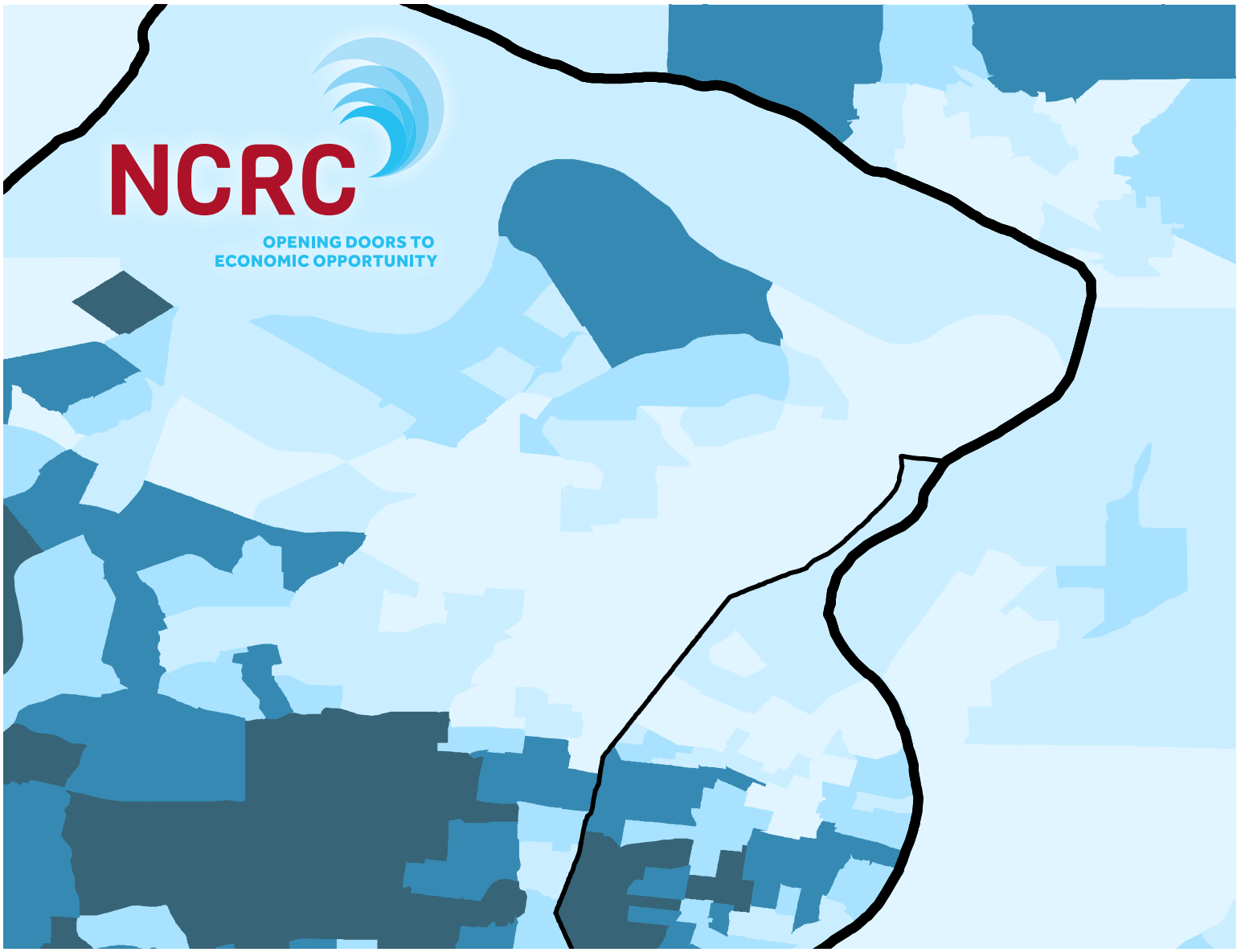


Home Mortgage Lending in St. Louis, Milwaukee, Minneapolis and Surrounding Areas

July 2016

ORIGINAL RESEARCH BY:

Jason Richardson
Director of Research and Evaluation

Bruce Mitchell
Senior Research Analyst

Nicole West
Research Fellow

ACKNOWLEDGMENTS:

John Taylor
President and CEO

Jesse Van Tol
Chief of Membership and Policy

Eric Hersey
Director of Communications

Ryan Conley
Communications Coordinator

Richard Lynch
Graphic Designer and Publications Manager

Gerron Levi
Director of Policy and Government Affairs

Nicole Barden
Director of Membership and Organizing

ABOUT NCRC

NCRC and its grassroots member organizations create opportunities for people to build wealth. We work with community leaders, policymakers and financial institutions to champion fairness in banking, housing and business development.

Our members include community reinvestment organizations, community development corporations, local and state government agencies, faith-based institutions, community organizing and civil rights groups, minority and women-owned business associations, and social service providers from across the nation.

For more information about NCRC's work, please contact:

John Taylor
President and CEO
johntaylor@ncrc.org
(202) 688-8866

Jesse Van Tol
Chief of Membership and Policy
jvantol@ncrc.org
(202) 464-2709

Jason Richardson
Director of Research and Evaluation
jrichardson@ncrc.org
(202) 464 2722

Eric Hersey
Director of Communications
ehersey@ncrc.org
(202) 524-4880

NCRC Board Members **Bethany Sanchez,** *Director of Fair Lending, Metropolitan Milwaukee Fair Housing Council,* **Dave Snyder,** *Coordinator, Minnesota Asset Building Coalition,* and **Elisabeth Risch,** *Director of Education and Research, Metropolitan St. Louis Equal Housing and Opportunity Council,* provided invaluable assistance with this project.

CONTENTS

St. Louis and Surrounding Areas 4

Executive Summary 4
Key Findings 5
Metropolitan St. Louis 9
The City of St. Louis 13
St. Louis Suburbs 17
Conclusion 20

Milwaukee and Surrounding Areas 21

Executive Summary 21
Key Findings 22
Milwaukee MSA Analysis 25
The City of Milwaukee 29
Milwaukee Suburbs 31
Conclusion 33

Minneapolis and Surrounding Areas 34

Executive Summary 34
Key Findings 35
Minneapolis/St. Paul MSA Analysis 39
The Cities of Minneapolis/St. Paul 44
Minneapolis/St. Paul Suburbs 46
Conclusion 47

St. Louis and Surrounding Areas

EXECUTIVE SUMMARY

The cover image is a map of St. Louis and surrounding counties. Darker blue colors indicate more loans per housing unit in a given census tract.

St. Louis, Missouri and its suburban community of Ferguson gained national attention as a site of protests in 2014. These events arose in part out of a history of racial discrimination and economic decline that has afflicted the broader metropolitan area. The urban core of the City of St. Louis was previously industrial, and has lost 63 percent of its population since 1950. The impact of deindustrialization, population loss, and an aging infrastructure has left large areas of the North City portion of St. Louis derelict and abandoned. The city is also hyper-segregated.[1] The predominantly white community in the southern portion of St. Louis and predominantly African American community of North City are residentially isolated. Most neighborhoods of North City have over 80 percent African American residency, while many neighborhoods in the southern portion are majority white. African American-majority neighborhoods also extend from North City to suburbs in the northwest, such as Ferguson, and across the river into East St. Louis in the state of Illinois. These areas form a contiguous segregated zone of disinvestment and concentrated poverty.[2]

NCRC has found an extensive mortgage lending imbalance in St. Louis, with mortgage credit distribution heavily swayed by income levels and the racial makeup of neighborhoods. These trends are noteworthy, especially within the City of St. Louis. While median family income is a crucial factor, lending is concentrated in majority white neighborhoods and scarce in majority African American neighborhoods. Additionally, sections of the St. Louis metropolitan area, like East St. Louis, have poor access to conventional banking resources, with a large proportion of residents either unbanked or underbanked.[3] Isolation from financial services impacts the ability of majority African American neighborhoods to build wealth, concentrating poverty. This perpetuates a cycle of disinvestment, reinforcing the likelihood that lenders will not invest there.



The Ville neighborhood in North St. Louis City, at Bishop L. Scott Ave. and Maffitt Ave. (Photo: Elisabeth Risch, EHOC)

To help address this problem, NCRC is calling for stronger enforcement and expansion of the Community Reinvestment Act (CRA) and the preservation and strengthening of the affordable housing goals in the secondary mortgage market.

1 Douglas S. Massey and Jonathan Tannen, "A Research Note on Trends in Black Hypersegregation," *Demography* 52.3 (2015), 1025-1034.

2 Tanvi Misra, "America Has Half as Many Hypersegretated Metros as it Did in 1970," *CityLab*, May 21, 2015.

3 Ethan Geiling, "The Most Unbanked Places in America," *Corporation for Enterprise Development*, December 14, 2011.

KEY FINDINGS



The Wellston neighborhood at Etzel Ave. and Stephen Jones Ave. (Photo: Elisabeth Risch, EHOC)

- In the St. Louis metropolitan statistical area (MSA) as a whole, 72 percent of the population is white and 21 percent is African American. **While there is evidence of extensive segregation**, with areas to the northwest and east of the City of St. Louis showing very high concentration of African American residents, the variable which best predicts home loan activity in the MSA (or region) is not race but in fact the median family income of the neighborhood.
- In the City of St. Louis itself, **the racial composition of the neighborhood is a strong predictor of mortgage activity,** becoming nearly as important as neighborhood income in its predictive capability. As the percentage of white residents increases, so does the amount of mortgage lending. Conversely, a higher proportion of African American residents correlates with fewer mortgage loan originations. This relationship of race and lending in communities significantly enhanced the predictive capacity of our regression model. This is visible in the map of lending in the city as well, with neighborhoods in the white, southern half of the city receiving higher levels of mortgage investment while virtually none was extended to the North City portion of St. Louis, where neighborhoods are typically 80 percent or more African American.
- The City of St. Louis and its inner ring suburbs like Ferguson show strong indications of hyper-segregation. There are many census tracts in which the population is 75-98 percent African American – concentrated clusters of segregated neighborhoods. Within these areas less than one percent of homes received a home purchase loan for the 2012-2014 period. **This lack of lending is not fully explained by differences of income**, meaning that credit is flowing more to neighborhoods with higher percentages of white residents with the same income profile.
- **Other studies suggest that it is difficult for individual qualified borrowers of any race to secure credit in high-poverty, hyper-segregated areas.**[4] These areas place a strain on public services due to their decreased tax revenue, aging infrastructure, and increased demand for services. As a result, public services may fail or be scaled back, with the segregated areas becoming areas of concentrated poverty, to the detriment of other parts of the MSA.[5] This can lead to unproductive zones of abandonment in urban centers, which provide insufficient revenue to support their residents' needs.

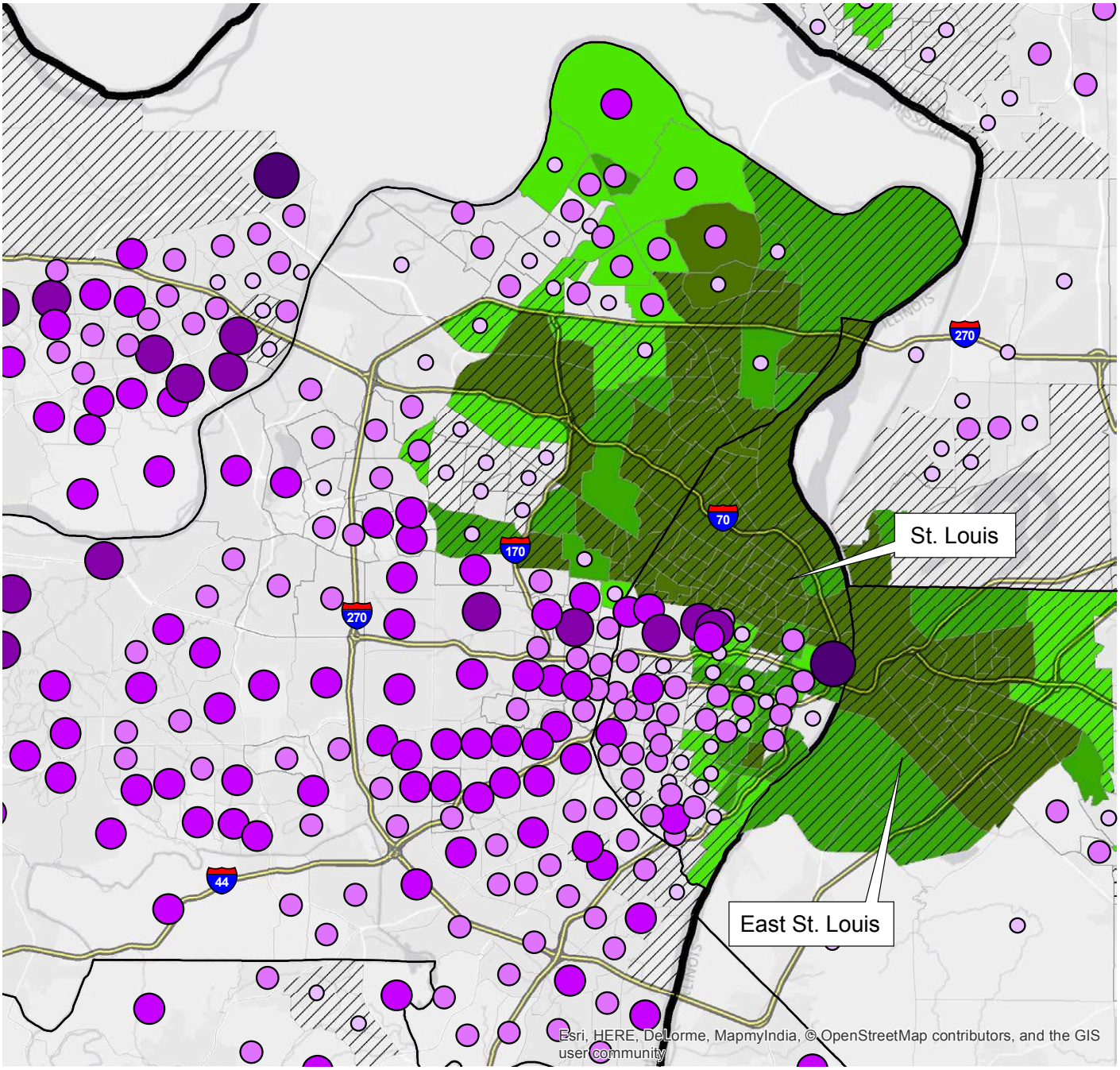


The Ville neighborhood in North City, at St. Louis Ave. and Taylor Ave. (Photo: Elisabeth Risch, EHOC)

4 Elvin K. Wyly, Mona Atia, Holly Foxcroft, Daniel J. Hamme, and Kelly Phillips-Watts, "American home: Predatory mortgage capital and neighbourhood spaces of race and class exploitation in the United States," *Geografiska Annaler: Series B, Human Geography* 88.1 (2006): 105-132.

5 Tanvi Misra, "America Has Half as Many Hypersegretated Metros as it Did in 1970," *CityLab*, May 21, 2015.

Home Purchase Mortgage Lending in the St. Louis MSA



Census Tract
Home Purchase Loans
per 100 Houses 2012-2014

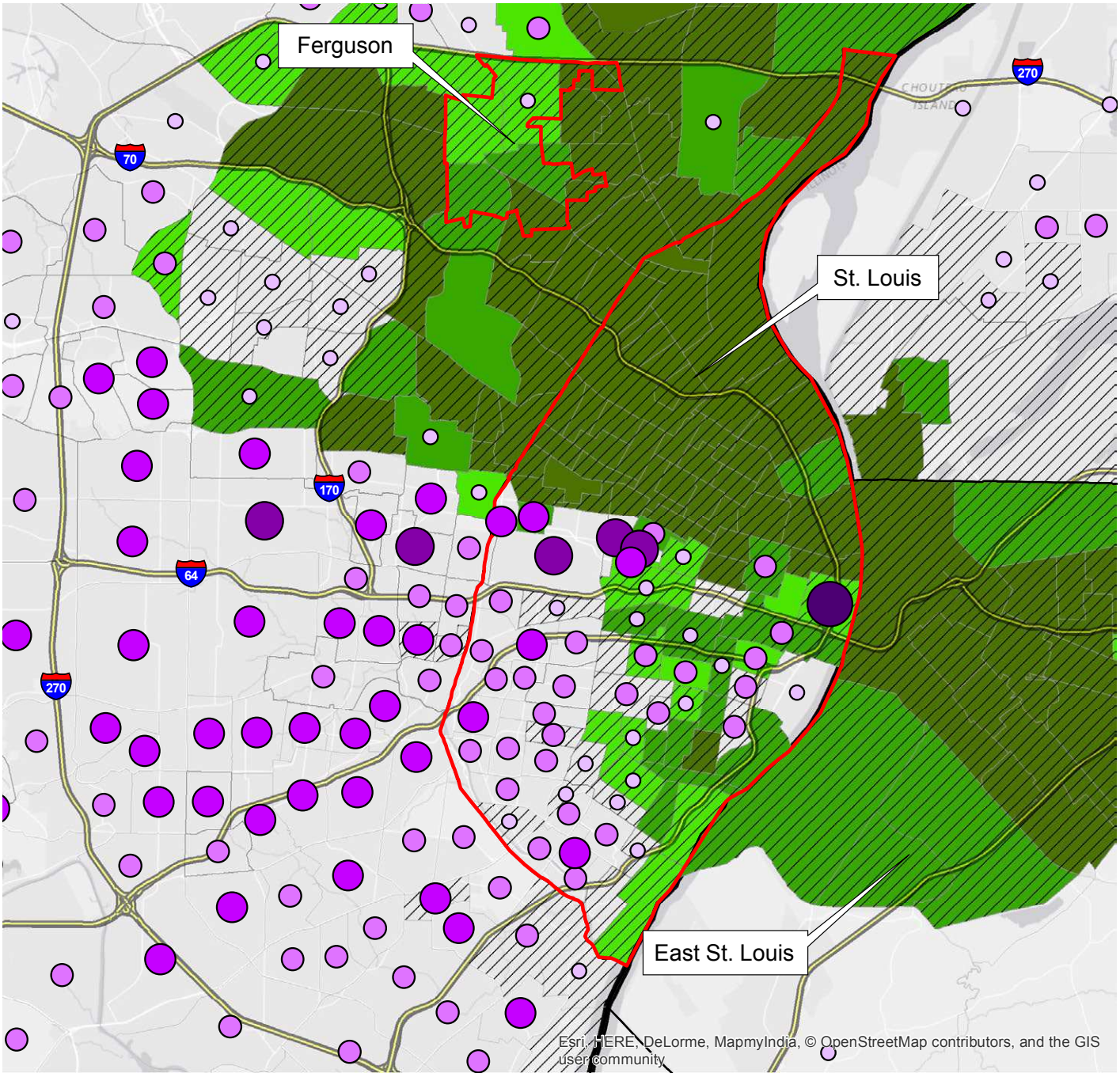
- 4 - 6
- 7 - 10
- 11 - 15
- 16 - 35
- 36 - 80

Minority Population
All except non-Hispanic White

- 80% - 100%
- 60% - 80%
- 40% - 60%
- Low or Moderate Income
- State Boundary

This map shows the relationship of mortgage lending with low- and moderate-income areas and predominantly African American neighborhoods of the St. Louis region during the period from 2012-2014. There is little mortgage lending (less than four loans per 100 houses) in many of the predominantly African American and lower-income neighborhoods of the region.

Home Purchase Mortgage Lending in the City of St. Louis



Census Tract Home Purchase Loans per 100 Houses 2012-2014

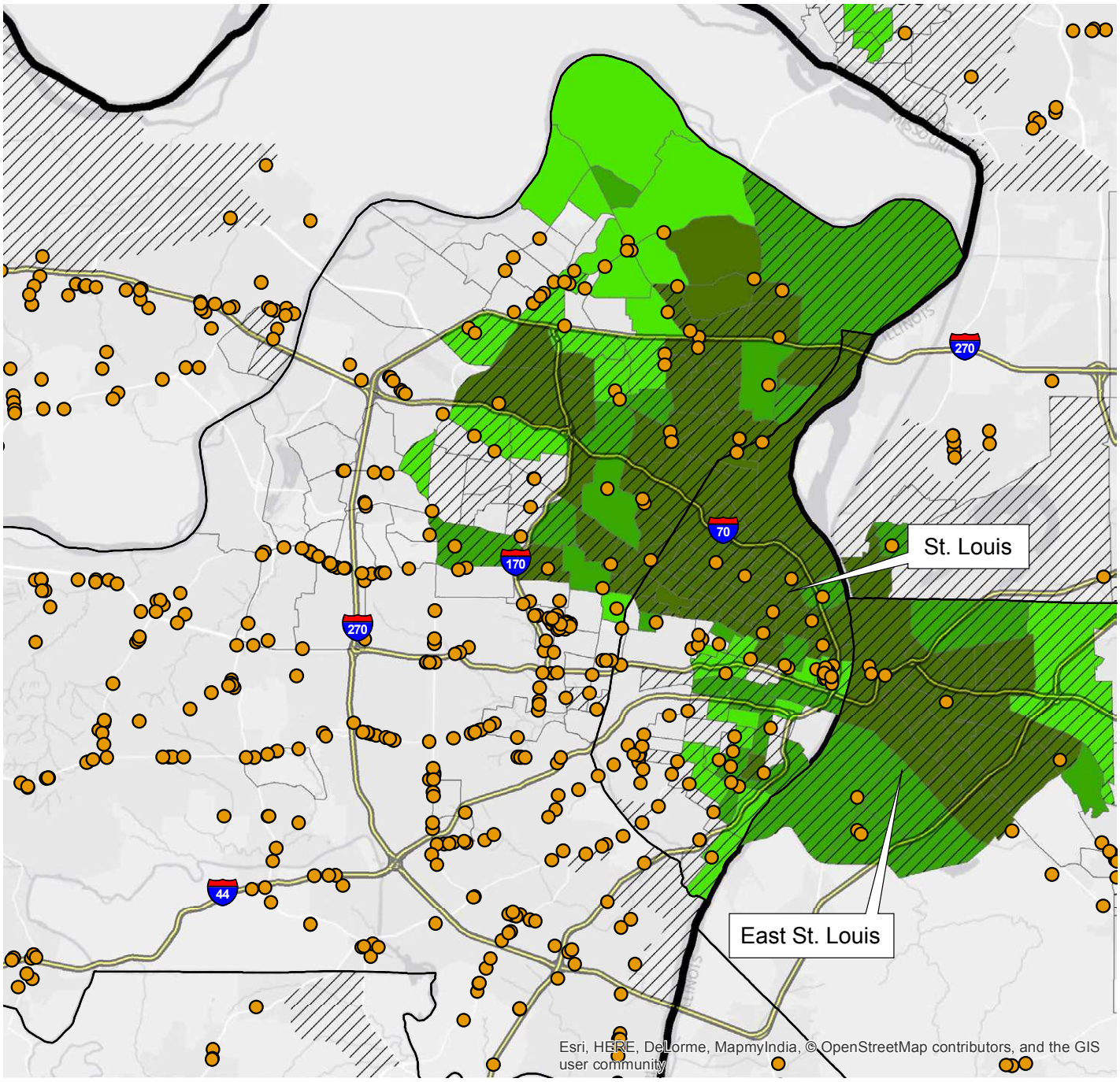
- 4 - 6
- 7 - 10
- 11 - 15
- 16 - 35
- 36 - 80
- Ferguson and St. Louis

Minority Population All except non-Hispanic White

- 80% - 100%
- 60% - 80%
- 40% - 60%
- Low or Moderate Income
- State Boundary

This close-up view of the City of St. Louis shows the low levels of mortgage lending in predominantly African American neighborhoods. During the study period of 2012-2014, less than one percent of the homes in the northern areas of St. Louis and East St. Louis were purchased by owner-occupants.

Bank Branch Locations in the St. Louis MSA



Minority Population
All except non-Hispanic White

- 80% - 100%
- 60% - 80%
- 40% - 60%
- Low or Moderate Income
- Bank Branches
- State Boundary

This map indicates bank branch locations in 2015. Outside of the commercial core of downtown St. Louis, there appear to be fewer bank branches in low- to moderate-income and predominantly African American neighborhoods. Some areas of North City and East St. Louis may constitute "banking deserts," as they are isolated from access to conventional financial services.

METROPOLITAN ST. LOUIS

The history of St. Louis over the past 50 years is similar to many of America's suburbanized and deindustrialized cities in the late 20th century. Reaching a maximum population of 856,000 residents in 1950, the urban core shrank to merely 319,000 by the 2010 U.S. Census. Meanwhile, the population in the surrounding suburbs grew from approximately 825,000 to 2.4 million (1950 and 2010 decennial U.S. Census). The flight of more affluent white residents from the city center resulted in the concentration of African Americans and impoverished residents within the city and aging inner-ring suburbs of the metropolitan complex. Very high levels of segregation are borne out in its high index of dissimilarity of 70.6 for African American and white residents.

Groups	Index of Dissimilarity*
Asian/white	40.8
Hispanic/others	30.6
Black/white	70.6

*Taken from a Brown University study (2010 U.S. Census data): http://www.s4.brown.edu/us2010

This analysis of the St. Louis area will first describe the relationship between mortgage lending and demographic and socioeconomic characteristics in the overall MSA, and then focus on the City of St. Louis in contrast to its surrounding suburban counties. Throughout the study, we accounted for areas of empty lots and abandonment by normalizing the number of loans by the number of housing units counted in the 2010 U.S. Census.

The St. Louis MSA includes the City of St. Louis and surrounding counties in Missouri and across the Mississippi River in Illinois. The first table displays descriptive statistics for the region.

DESCRIPTIVE STATISTICS

	Minimum	Maximum	Mean	Std. Deviation
Hispanic %	.0021	.7177	.024962	.0337131
White %	.0019	.9878	.722783	.3124266
Black %	.0000	.9856	.213720	.3149884
Asian %	.0000	.2318	.019387	.0278541
OwnerOcc %	.0026	.9826	.697069	.1961753
Poverty %	.0028	.6321	.151116	.1263145
hs_grad %	.5160	.9995	.884369	.0778097
Loans_Unit	.0000	266.5120	31.252728	35.6801006
Loans_POP	.0000	105.5406	13.054707	13.7713962
Count_POP	.0000	.2874	.075810	.0515345
Minority %	.0122	.9981	.277217	.3124266

N=654

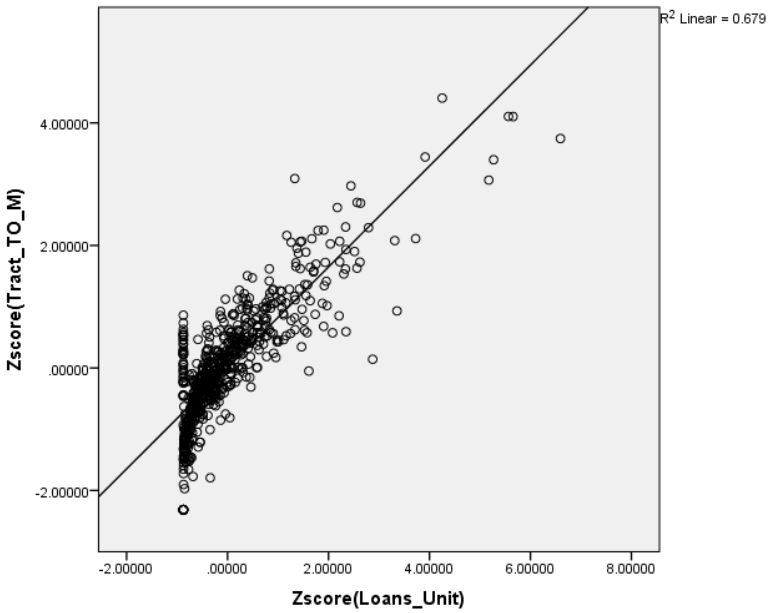
The high concentration of African American or white residents in census tracts reflects the pattern of segregation indicated by the high index of dissimilarity. In fact, 85 of the 654 census tracts in the St. Louis MSA have African American population percentages of 75 percent or more. The entire northern portion of St. Louis, North City, is over 75 percent African American.

This demographic polarization is manifested in the lending patterns throughout the area, with the percentage of African Americans located in a census tract significantly and negatively correlated with the sums of mortgage lending. Additionally, there were positive and significant correlations between higher socioeconomic status and lending, with greater median family income having especially strong relationships with higher home mortgage lending.

		Minority %	White %	Black %	Hispanic %	Asian %	Owner Occupancy %	Poverty %	HS Grad %	Median MFI
Pearson's R	Loans per Unit	-.397**	.397**	-.412**	-.061	.322**	.491**	-.543**	.598**	.824**
Spearman's rho	Loans per Unit	-.362**	.362**	-.408**	.216**	.585**	.570**	-.761**	.761**	.802**

N=654

A scatterplot of the relationship between higher median family income and mortgage lending reveals a very strong linear relationship, with an r^2 of 0.679.



In order to explore the relationships between mortgage lending patterns and social variables, a regression model was developed using variables for race and ethnicity (percentages of white, African American, Hispanic, and Asian residents per each census tract), education level (percent of high school graduates), and indicators of wealth (median family income, homeowner occupancy) and poverty levels. Of these variables, the single most significant one was median family income per tract, with the percentage of white residents in the tract an additional predictor. The relationship of median family income and home mortgage lending per housing unit in the area has an adjusted *R-squared* of .679, a very high value considering this is a complex socioeconomic relationship with a potential for many factors to come into play. Essentially, higher median family income explained almost 68 percent of the mortgage lending in the St. Louis MSA. When white race is considered there is an indication of confounding with the income variable in the model. The variable for white percent has a negative correlation coefficient, which is not present in the bivariate correlations analysis. The strong bivariate correlation and regression value for income and home purchase mortgage lending indicate a stronger association than does race.

MODEL SUMMARY[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.824[a]	.679	.679	.56659743
2	.834[b]	.696	.695	.55236476

a. Predictors: (Constant), Zscore(Tract_TO_M)

b. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(White)

c. Dependent Variable: Zscore(Loans_Unit)

COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.024E-013	.022		.000	1.000		
	Zscore(Tract_TO_M)	.824	.022	.824	37.176	.000	1.000	1.000
2	(Constant)	1.022E-013	.022		.000	1.000		
	Zscore(Tract_TO_M)	.922	.027	.922	33.937	.000	.634	1.578
	Zscore(White)	-.161	.027	-.161	-5.919	.000	.634	1.578

a. Dependent Variable: Zscore(Loans_Unit)

While white residents are 75 percent of the population in the St. Louis MSA, they received 83 percent of the mortgage loans, resulting in a 112 percent disparity ratio. In contrast, African American residents are 18 percent of the population, but received only four percent of the loans, creating an unfavorable disparity rate of 26 percent for them.

MARKET OVERVIEW LOAN NUMBERS

	Count of Loans				
Race and Ethnicity	**Population**	**Applications**	**Originations**	**Approval Rate**	**Disparity Ratio Loans/Population Size**
White	1,997,776	99,721	69,881	70%	112%
Hispanic	68,263	1,689	981	58%	46%
Black	487,527	7,896	3,956	50%	26%
Asian	56,510	2,289	1,505	66%	85%
Total	2,661,885	126,555	83,409	66%	100%
Geography	St. Louis MSA 2013				
Lender	All HMDA				
Filters	(State is IL and MSA is St. Louis, MO-IL MSA) Or (State is MO and MSA is St. Louis, MO-IL MSA)				
Notes	Figures may not equal 100% due to rounding				

When loans made in 2013 are analyzed relative to both race and borrower and census tract income, we find consistent patterns of greater loan approvals for upper-income applicants in upper-income areas. Additionally, the lowest approval rates were for the most segregated minority neighborhoods with the lowest income levels.

LOANS BY BORROWER INCOME

Percent of Applications Across Different Census Tracts	**Low- and Moderate-Income (LMI)**			**Middle- and Upper-Income (MUI)**		
	As a Percent of All		Approval Rates	As a Percent of All		Approval Rates
	Applications	Originations		Applications	Originations	
All Tracts	36%	32%	60.24%	64%	68%	70%
Minority Level						
< 10% Minority	47%	49%	63%	50%	50%	71%
10-19% Minority	24%	26%	64%	31%	32%	73%
20-49% Minority	17%	16%	58%	14%	14%	68%
50-79% Minority	6%	5%	50%	3%	3%	72%
80-100% Minority	5%	3%	37%	1%	1%	44%
Tract Income Level						
Low - < 50% MSA/MD Median	3%	2%	40%	1%	1%	44%
Moderate - 50-79.99% MSA/MD Median	18%	16%	53%	7%	6%	56%
Middle - 80-119.99% MSA/MD Median	54%	55%	62%	40%	39%	65%
Upper - 120% or More MSA/MD Median	25%	27%	65%	52%	55%	71%
Geography	St. Louis MSA 2013					
Lender	All HMDA					
Filters	(State is IL and MSA is St. Louis, MO-IL MSA) Or (State is MO and MSA is St. Louis, MO-IL MSA)					
Notes	Figures may not equal 100% due to rounding					

THE CITY OF ST. LOUIS

The relationship between mortgage lending, race and socioeconomic status shifts when we focus our analysis on the highly segregated area of the City of St. Louis. Here, lending takes on a different and more racialized pattern. Within the city, 52 percent of the population is African American and only 39 percent is white. The socioeconomic status of residents within the city is also substantially lower than residents of the suburbs. The mean of tract-level median family income is 64.9, well below the average of 100 and within the *moderate* income range. Additionally, less than half of the residents of the City of St. Louis own their homes, with a mean homeowner occupancy level of only 46 percent. Residents of the city have substantially less wealth as measured by these two socioeconomic indicators than residents of the suburbs do, as we'll see when we turn to the analysis of suburban patterns.

DESCRIPTIVE STATISTICS

	Range	Minimum	Maximum	Mean	Std. Deviation
White %	.9329	.0031	.9361	.397597	.3382666
Black %	.9754	.0103	.9856	.524294	.3696598
Asian %	.1699	.0000	.1699	.025643	.0359682
OwnerOcc %	.8869	.0026	.8896	.464460	.1824598
Poverty %	.5974	.0347	.6321	.281140	.1427111
Tract_TO_M	153.7100	.0000	153.7100	64.960159	34.4988948
hs_grad %	.4108	.5887	.9995	.822085	.0873702
Loans_Unit	93.2104	.0000	93.2104	11.978153	14.0534507
Loans_Pop	28.5988	.0000	28.5988	6.541962	7.1213846
Minority %	.9329	.0639	.9969	.602403	.3382666

N=126

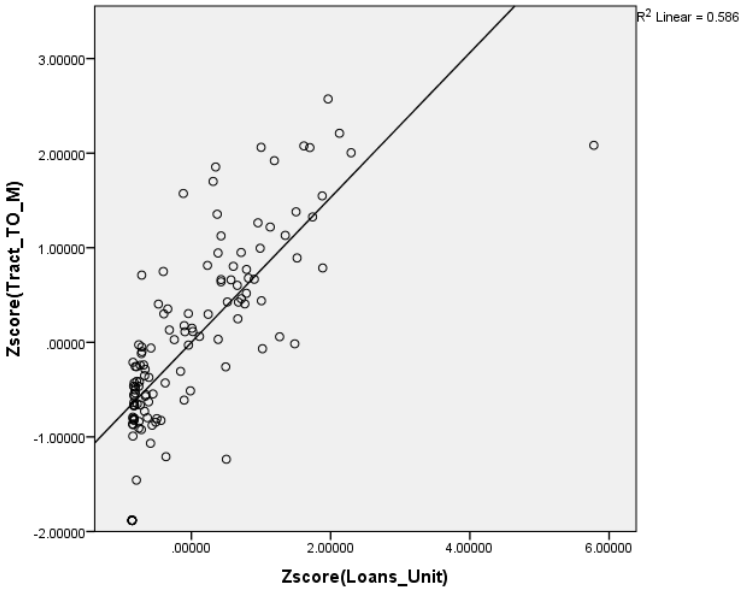
Within the city, the bivariate correlations between mortgage lending per unit and white and African American race have significant and higher correlation coefficients than when the MSA was examined. These patterns had been obscured by their aggregation in the larger data set. Socioeconomic factors like education, income, and poverty continue to be significant and have the highest correlation coefficients.

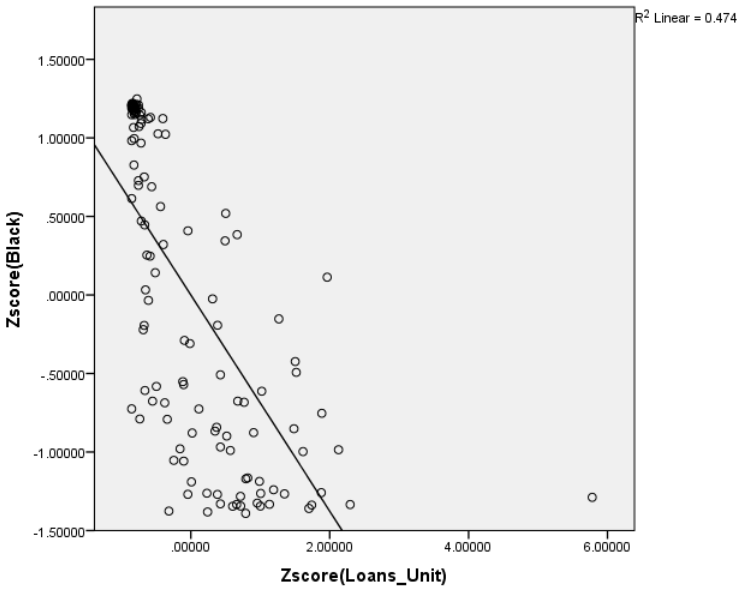
BIVARIATE CORRELATIONS

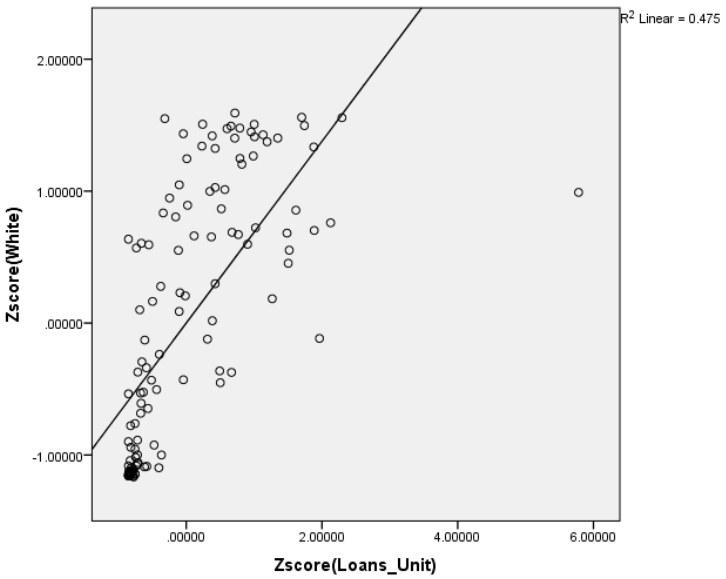
		Minority %	White %	Black %	Hispanic %	Asian %	Owner Occupancy %	Poverty %	HS Grad %	Median MFI
Pearson's R	Loans per Unit	-.689**	.689**	-.688**	.130	.433**	.277**	-.602**	.718**	.766**
Spearman's rho	Loans per unit	-.825**	.825**	-.815**	.538**	.656**	.305**	-.722**	.755**	.823**

N=126

Scatterplots indicate that the relationship between mortgage lending and median family income continues to be strong, with an r^2 of .586. The scatterplots for the race variables, percent African American and percent white, also show strong linear relationships, presenting near-mirror images of each other with significant r^2 of 0.474 and 0.475, respectively.







The regression model in this case is more complex, with variables for both socioeconomic status and race coming into play. The model which explains the relationship of home mortgage lending and the explanatory variables most fully, and that is also the most parsimonious, includes both higher median family income and lower percentages of African American residents. This model has an adjusted *R-squared* of .640. This means that neighborhoods with higher median family income and lower numbers of African Americans explained 64 percent of the mortgage lending in the confined areas of the City of St. Louis.

MODEL SUMMARY[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.766[a]	.586	.583	.64585547
2	.804[b]	.646	.640	.59974270
3	.816[c]	.666	.658	.58510748
4	.825[d]	.680	.670	.57480234

a. Predictors: (Constant), Zscore(Tract_TO_M)

b. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(Black)

c. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(Black), Zscore(hs_grad)

d. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(Black), Zscore(hs_grad), Zscore(Asian)

e. Dependent Variable: Zscore(Loans_Unit)

COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.007E-013	.058		.000	1.000		
	Zscore(Tract_TO_M)	.766	.058	.766	13.254	.000	1.000	1.000
2	(Constant)	1.006E-013	.053		.000	1.000		
	Zscore(Tract_TO_M)	.552	.071	.552	7.737	.000	.566	1.766
	Zscore(Black)	-.325	.071	-.325	-4.561	.000	.566	1.766
3	(Constant)	-1.002E-013	.052		.000	1.000		
	Zscore(Tract_TO_M)	.401	.089	.401	4.501	.000	.344	2.904
	Zscore(Black)	-.280	.072	-.280	-3.915	.000	.535	1.868
	Zscore(hs_grad)	.231	.086	.231	2.689	.008	.372	2.690
4	(Constant)	-1.002E-013	.051		.000	1.000		
	Zscore(Tract_TO_M)	.405	.088	.405	4.626	.000	.344	2.905
	Zscore(Black)	-.210	.077	-.210	-2.737	.007	.451	2.217
	Zscore(hs_grad)	.231	.084	.231	2.742	.007	.372	2.690
	Zscore(Asian)	.138	.059	.138	2.327	.022	.757	1.321

a. Dependent Variable: Zscore(Loans_Unit)

Race and income are the strongest factors among the variables which we examined in this segment of the analysis for the City of St. Louis. In both the bivariate correlations and in the regression model, income and race have the strongest relationship to home mortgage lending among variables which we examined in this segment of the analysis for the City of St. Louis. We will see the importance of race diminish as we turn to an analysis of the St. Louis suburbs.

ST. LOUIS SUBURBS

The suburbs were then isolated from the MSA and examined separately for comparison with the city. African Americans comprise a smaller percentage of the population, though they live in very segregated neighborhoods. Here, 44 of the 548 census tracts (many in East St. Louis) had percentages of African American residents greater than 75 percent. Meanwhile, 444 of the tracts had percentages of African American residents less than the MSA mean level of 21 percent. The suburbs are also more affluent than the city, with the average median family income at 106 percent of the MSA average, versus 65 percent in the city. They also have much higher percentages of homeowner occupancy, at over 74 percent compared to 46 percent in the city.

DESCRIPTIVE STATISTICS

	Range	Minimum	Maximum	Mean	Std. Deviation
White %	.9860	.0019	.9878	.788020	.2630550
Black %	.9840	.0000	.9840	.151738	.2638063
Asian %	.2318	.0000	.2318	.018218	.0261488
OwnerOcc %	.9773	.0053	.9826	.745772	.1584583
Poverty %	.6231	.0028	.6258	.124461	.1032315
Tract_TO_M	288.3300	.0000	288.3300	106.246077	40.6737512
hs_grad %	.4835	.5160	.9995	.897792	.0681037
Loans_Unit	266.51	.00	266.51	35.0924	37.41496
Loans_Pop	105.54	.00	105.54	14.3060	14.37662
Minority %	.99	.01	1.00	.2120	.26305

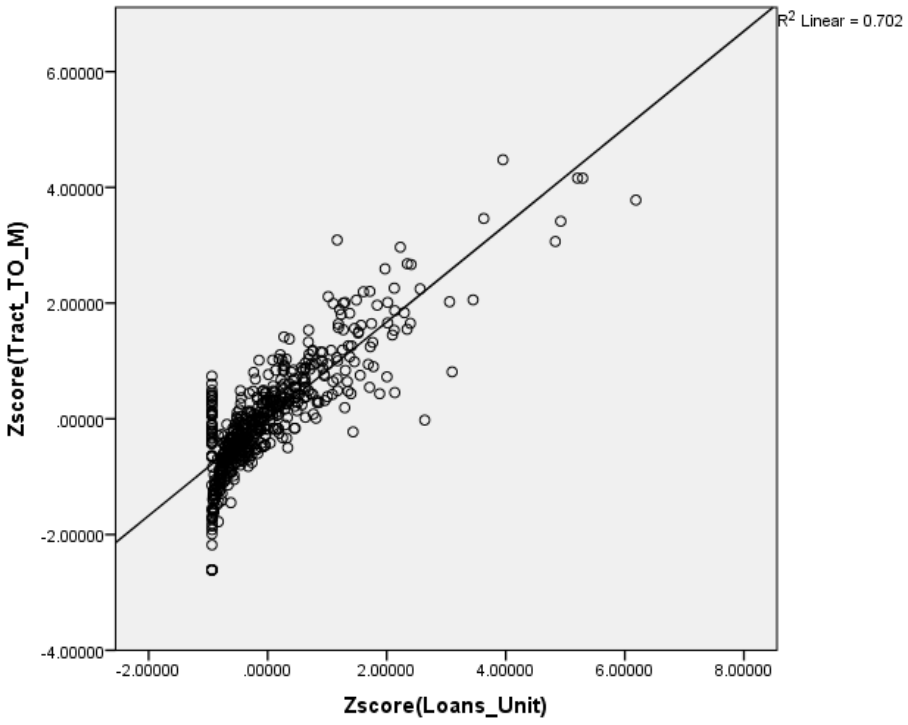
N=548

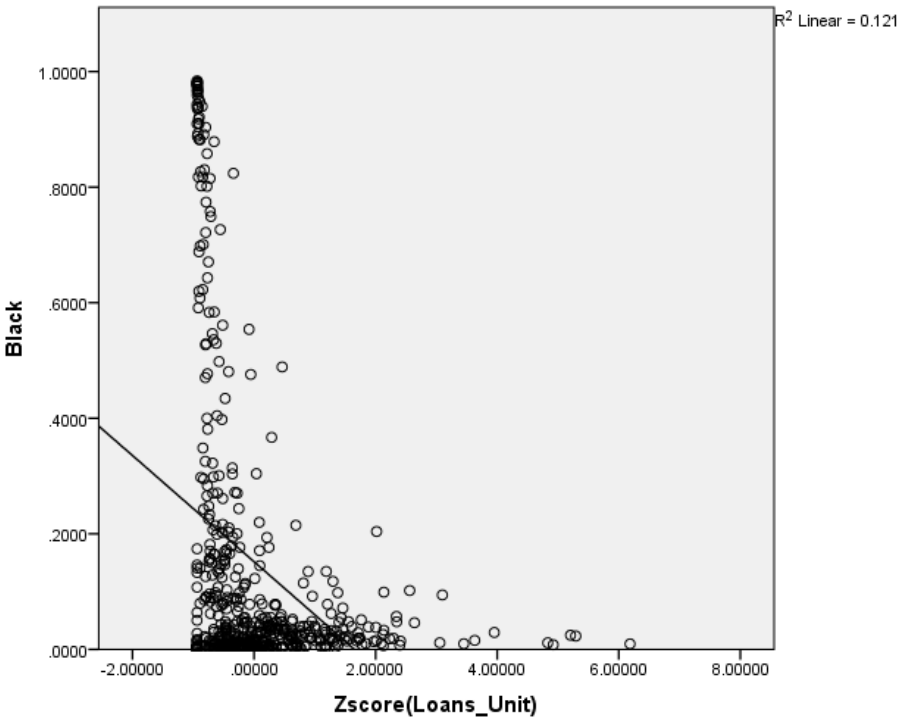
In the St. Louis suburbs, the importance of race in home mortgage lending diminishes in the bivariate correlations. Home mortgage lending is most strongly associated with socioeconomic, rather than racial and ethnic factors. This is indicated by the high correlation coefficients for education level, income, and poverty. Race is still significant, and shows a positive correlation with the amount of mortgage lending to neighborhoods with higher percentages of whites, and a significant negative relationship with the percentage of African Americans.

		Minority %	White %	Black %	Hispanic %	Asian %	Owner Occupancy %	Poverty %	HS Grad %	Median MFI
Pearson's R	Loans per Unit	-.320**	.320**	-.348**	-.051	.395**	.471**	-.535**	.592**	.838**
Spearman's Rho	Loans per Unit	-.195**	.195**	-.258**	.193**	.632**	.539**	-.745**	.739**	.801**

N=548

Scatterplots show the very strong linear relationship between mortgage lending and median family income, with an r^2 of 0.702. The scatterplots of race (African American) and lending are much weaker than they were in the city, however.





A regression model was constructed to determine which variables may act as predictors for home mortgage lending. The significant variable with the strongest relationship to higher amounts of home mortgage lending was tract median family income. With an adjusted *R-squared* of .701, increased median family income provided the model with the best goodness-of-fit of all the variables. While white race also achieved significance, its negative coefficient is inconsistent with the bivariate correlation results, indicating that it is collinear and should be removed from consideration, especially since it enhances model goodness-of-fit negligibly.

MODEL SUMMARY[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.838[a]	.702	.701	.54669957
2	.845[b]	.715	.714	.53516200
3	.847[c]	.718	.716	.53269809

a. Predictors: (Constant), Zscore(Tract_TO_M)

b. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(White)

c. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(White), Zscore(OwnerOcc)

d. Dependent Variable: Zscore(Loans_Unit)

COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.022E-013	.023		.000	1.000		
	Zscore(Tract_TO_M)	.838	.023	.838	35.835	.000	1.000	1.000
2	(Constant)	-1.022E-013	.023		.000	1.000		
	Zscore(Tract_TO_M)	.903	.026	.903	34.188	.000	.750	1.334
	Zscore(White)	-.132	.026	-.132	-4.980	.000	.750	1.334
3	(Constant)	-1.019E-013	.023		.000	1.000		
	Zscore(Tract_TO_M)	.877	.028	.877	30.798	.000	.640	1.562
	Zscore(White)	-.160	.029	-.160	-5.569	.000	.629	1.589
	Zscore(OwnerOcc)	.074	.030	.074	2.460	.014	.580	1.726

a. Dependent Variable: Zscore(Loans_Unit)

CONCLUSION

This analysis shows that income and race are significantly associated with home mortgage lending patterns throughout the St. Louis MSA. Our mapping and bivariate correlation analysis indicated that lower income areas and areas with larger proportions of African American residents have significantly less home mortgage activity than affluent or majority white areas at all scales of analysis. This pattern is much more significant in the City of St. Louis, however, where income and race are both strong predictors in the regression models. The statistical model for the suburbs is less clear, and income and race may be collinear, making it difficult to examine their influence separately. This is interesting since it indicates that income and race may have a different impact on lending in the suburbs and urban core of St. Louis. It could also reflect higher median family income of suburban African Americans families in the region.

Milwaukee and Surrounding Areas

EXECUTIVE SUMMARY

Within the City of Milwaukee, Wisconsin, nearly 90 percent of African Americans live in the inner city. The Milwaukee metro area has one of the lowest rates of African American suburbanization.[1] The city itself is "hyper-segregated," with most African American neighborhoods concentrated in the central and northern portions of the city.[2] Majority African American neighborhoods stop at the northern boundary of the city, where the suburbs become overwhelmingly white. This hyper-segregated reality has even impacted the transportation policy of the region, further spatially isolating African American communities.[3] Additionally, comparing the City of Milwaukee to its suburbs reveals an example of extreme income inequality. In 2013, Milwaukee Mayor Tom Barrett stated:

> "We are the only metropolitan area in the entire country where you've got that ratio [city poverty to suburban poverty] higher than four, meaning that the poverty rate is four times greater in the city than it is in the suburbs."[4]

The combined effect of institutional, individual and policy decisions manifest in the minority areas of the city, which form a single, contiguous, segregated zone of disinvestment and concentrated poverty.[5]

NCRC has found an extensive mortgage lending imbalance in Milwaukee, with mortgage credit distribution skewed heavily toward majority white neighborhoods. While median family income is a critical factor, lending is concentrated in majority white neighborhoods and scarce in majority African American neighborhoods. Within the City of Milwaukee, the race of the neighborhood is a significant variable associated with the amount of mortgage loan activity. This further concentrates poverty, impacting the ability of majority African American neighborhoods to build wealth and increasing the likelihood that lenders will not invest there. This process creates more segregation, as African American families are concentrated in neighborhoods that see little to no investment from lenders.

To help address this problem, NCRC is calling for stronger enforcement and expansion of the Community Reinvestment Act (CRA) and the preservation and strengthening of the affordable housing goals in the secondary mortgage market.

1 Ray Sanchez, "Race and Reality: The scourge of segregation," *CNN,* December 1, 2015.

2 Douglas S. Massey and Jonathan Tannen, "A Research Note on Trends in Black Hypersegregation," *Demography* 52.3 (2015), 1025-1034.

3 Ray Sanchez, "Race and Reality: The scourge of segregation," *CNN,* December 1, 2015.

4 Tom Kertscher, "Milwaukee's city-suburban poverty disparity worst among U.S. metro areas, Mayor Tom Barrett says," *Politifact Wisconsin,* October 3, 2013,

5 Douglas S. Massey, "Residential Segregation and Neighborhood Conditions in U.S. Metropolitan Areas," *America Becoming: Racial Trends and Their Consequences* 1.1 (2001): 391-434.

KEY FINDINGS

- With an index of dissimilarity of 84.4, Milwaukee is the third most segregated major city in the U.S., behind Detroit, Michigan and Gary, Indiana.[6,7]
- In the City of Milwaukee, African Americans comprise 40 percent of the overall population. Suburban areas of the Milwaukee metropolitan statistical area (MSA) are 88 percent white. **Both geographies display signs of extensive segregation, regardless of the size of the African American population**.
- Examining the number of loans in the Milwaukee MSA in 2014 reveals that the market **favors white applicants. Whites represent 70 percent of the population, yet received 81 percent of the loans, resulting in a 118 percent disparity ratio. African Americans are 16 percent of the population yet only received four percent of the loans, an unfavorable disparity rate of 24 percent.**
- Loans in the Milwaukee MSA are heavily concentrated in majority white and middle- and upper-income neighborhoods.
- Across both the city and the MSA the level of owner occupancy and the median family income were significantly correlated with lending activity; however, **in the City of Milwaukee the areas with a higher percentage of white residents also had a higher likelihood of seeing mortgage activity**.
- **Other studies suggest that it is difficult for qualified borrowers of any race to secure credit in high poverty, hyper-segregated areas.**[8] These areas place a strain on public services due to their decreased tax revenue, aging infrastructure, and increased demand for services. As a result, public services may fail or be scaled back, with the segregated areas becoming areas of concentrated poverty to the detriment of other parts of the MSA.[9]



South 10th Street (Photo: Matthew Wisla courtesy of Milwaukee NNS)



Lindsey Heights (Photo: Mark Doremus courtesy of Milwaukee NNS)

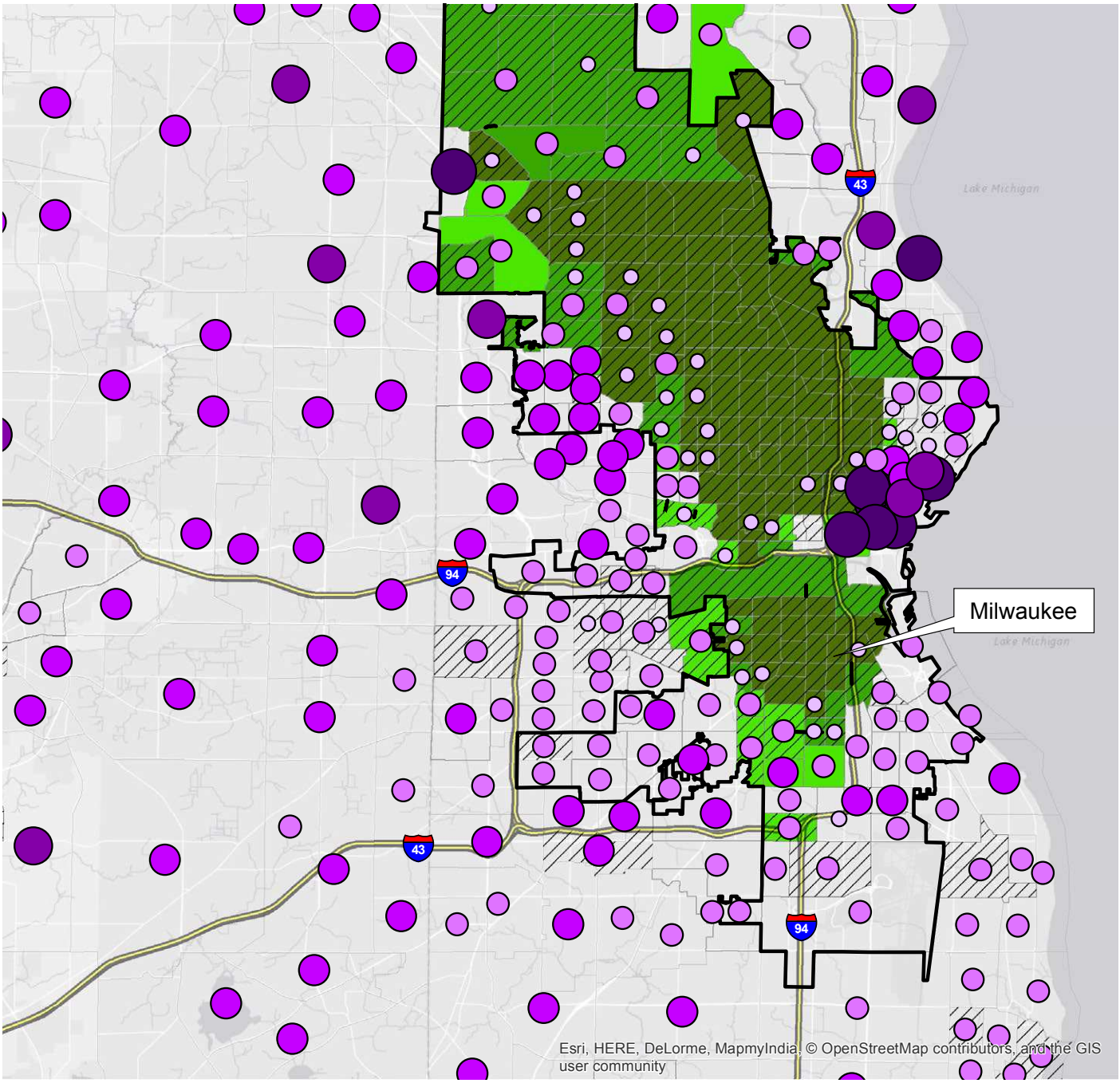
6 Douglas S. Massey, "Residential Segregation and Neighborhood Conditions in U.S. Metropolitan Areas," *America Becoming: Racial Trends and Their Consequences* 1.1 (2001): 391-434.

7 "Segregation: Dissimilarity Indices," CensusScope.

8 Elvin K. Wyly, Mona Atia, Holly Foxcroft, Daniel J. Hamme, and Kelly Phillips-Watts, "American home: Predatory mortgage capital and neighbourhood spaces of race and class exploitation in the United States," *Geografiska Annaler: Series B, Human Geography* 88.1 (2006): 105-132.

9 Tanvi Misra, "America Has Half as Many Hypersegretated Metros as it Did in 1970," *CityLab,* May 21, 2015.

Home Purchase Mortgage Lending in the Milwaukee MSA



Census Tract Home Purchase Loans per 100 Houses 2012-2014

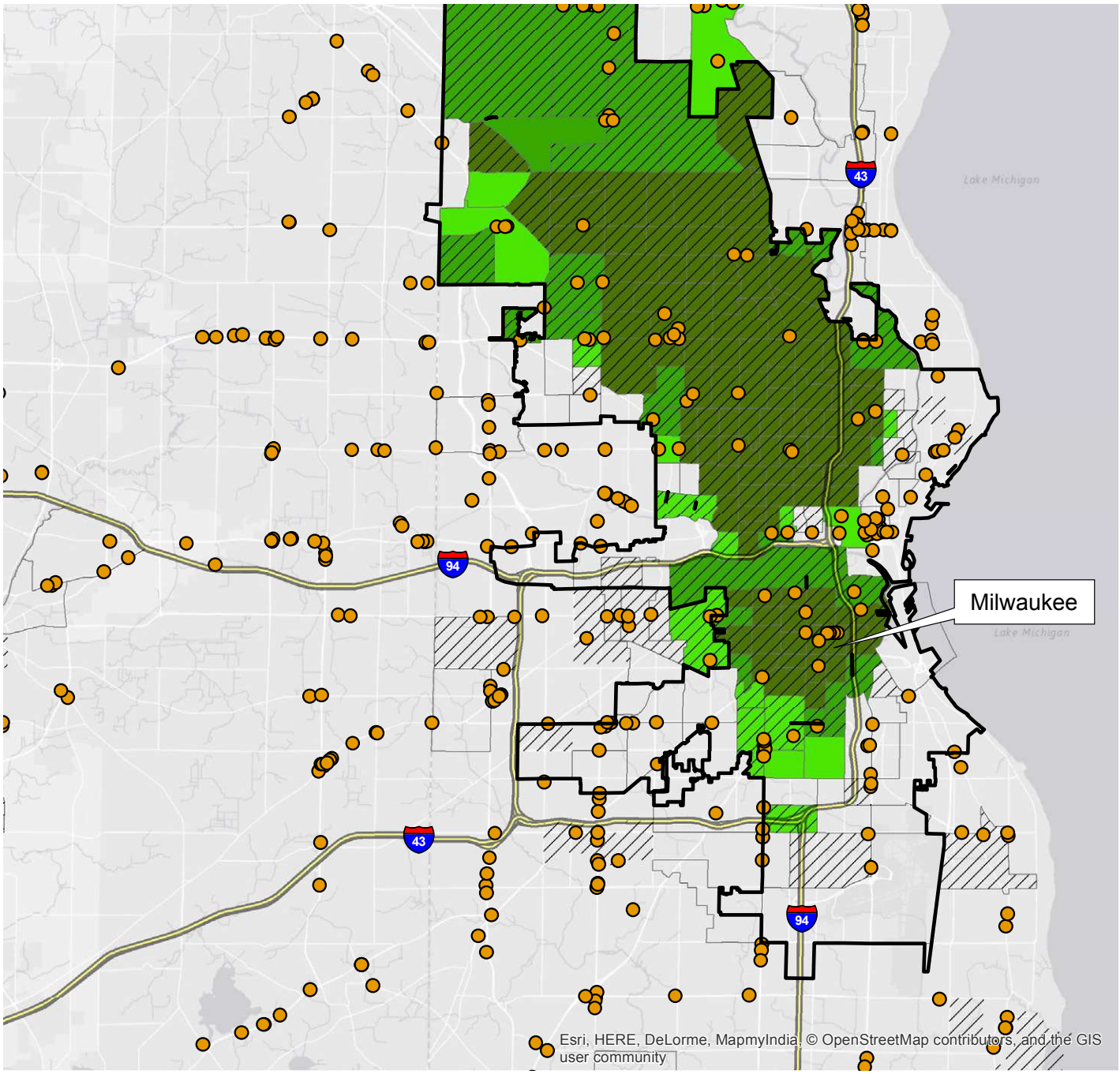
- 3 - 4
- 5 - 8
- 9 -12
- 13 - 15
- 16 - 72

Minority Population All except non-Hispanic White

- 80% - 100%
- 60% - 80%
- 40% - 60%
- Low or Moderate Income
- Milwaukee Boundary

This map displays mortgage lending in the Milwaukee region, with low- and moderate-income areas and neighborhoods with high proportions of minority residents (African American and Hispanic) indicated. Lending activity in the majority white downtown and suburbs was high. Low-income and minority areas show lower activity levels, with less than three loans for every 100 homes during the 2012-2014 study period.

Bank Branch Locations in the Milwaukee MSA



Minority Population
All except non-Hispanic White

- 80% - 100%
- 60% - 80%
- 40% - 60%
- Low or Moderate Income
- Bank Branches
- Milwaukee Boundary

This 2015 map of Milwaukee bank branches and low- to moderate-income and minority neighborhoods shows clustering along transportation routes leading to the suburbs, and also along the shore of Lake Michigan. Majority-minority areas of the city seem to have reduced neighborhood access to bank branches, unless they are on lines of transportation.

MILWAUKEE MSA ANALYSIS

With an index of dissimilarity of 84.4, Milwaukee is the third most segregated major city in the U.S., behind Detroit, Michigan and Gary, Indiana. This is apparent when examining the racial composition of the population in the overall MSA, where the City of Milwaukee is just 36 percent white and the surrounding MSA is 88 percent white.

Groups	Index of Dissimilarity*
Asian/white	48.1
Hispanic/others	60.6
Black/white	84.4

*Taken from Brown University study (2010 U.S. Census data): http://www.s4.brown.edu/us2010

Milwaukee MSA data shows that the area underperforms in the factors associated with wealth building. Homeownership is low in the urban area, at 57 percent owner-occupied units. Additionally, education measured by the rate of high school graduation was low. Rates of high school graduates were also low, with an average of only 87 percent graduates per tract. Conversely, more than 18 percent of Milwaukee MSA residents live in poverty (U.S. Census 2010).

DESCRIPTIVE STATISTICS

	Range	Minimum	Maximum	Mean	Std. Deviation
Hispanic %	.7617	.0103	.7720	.101397	.1678788
White %	.9672	.0027	.9698	.632489	.3442419
Black %	.9565	.0009	.9573	.212926	.3186603
Native %	.0180	.0000	.0180	.004461	.0035123
Asian %	.4146	.0000	.4146	.029825	.0371004
OwnerOcc %	.9774	.0027	.9800	.574853	.2365981
Poverty %	.8815	.0029	.8843	.185610	.1685155
Tract_TO_M	303.4700	.0000	303.4700	92.866400	45.4447320
hs_grad %	.6139	.3861	1.0000	.870481	.1188406
LOANS_UNIT	167.54	.00	167.54	30.2474	32.31902
LOANS_POP	65.66	.00	65.66	12.7243	12.66047
Minority %	.97	.03	1.00	.3675	.34424

N=425

Examination of bivariate correlations showed significant and positive correlations between home mortgage lending socioeconomic factors of median family income, homeowner occupancy and education. Race, especially where there are increasing percentages of white residents, had significant and high correlation coefficients, while African American percentages showed significant negative associations with a lower coefficient.

		Minority %	White %	Black %	Hispanic %	Asian %	Owner Occupancy %	Poverty %	HS Grad %	Median MFI
Pearson's R	Loans per Unit	-.645**	.645**	-.500**	-.321**	-.076	.765**	-.651	.604**	.843**
Spearman's rho	Loans per Unit	-.879**	.879**	-.802**	-.460**	.028	.854**	-.903**	.859**	.933**

N=425

A regression model was created to further examine the relationships and produced a high adjusted R^2 of .772 for home mortgage lending and median family income, homeowner occupancy and lower percentages of Native American residents. Since Native Americans comprise less than .5 percent of the MSA population, the variable was excluded despite the improvement in model goodness-of-fit. The result is that socioeconomic considerations become the dominant factor in home mortgage lending for the region.

MODEL SUMMARY[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.843[a]	.710	.710	.53891375
2	.871[b]	.759	.758	.49226825
3	.880[c]	.774	.772	.47711296
4	.885[d]	.783	.781	.46842958

a. Predictors: (Constant), Zscore(Tract_TO_M)

b. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc)

c. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc), Zscore(Native)

d. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc), Zscore(Native), Zscore(hs_grad)

e. Dependent Variable: Zscore(LOANS_UNIT)

COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.007E-013	.026		.000	1.000		
	Zscore(Tract_TO_M)	.843	.026	.843	32.201	.000	1.000	1.000
2	(Constant)	1.003E-013	.024		.000	1.000		
	Zscore(Tract_TO_M)	.609	.035	.609	17.462	.000	.470	2.127
	Zscore(OwnerOcc)	.321	.035	.321	9.217	.000	.470	2.127
3	(Constant)	1.002E-013	.023		.000	1.000		
	Zscore(Tract_TO_M)	.574	.034	.574	16.674	.000	.453	2.207
	Zscore(OwnerOcc)	.306	.034	.306	9.039	.000	.467	2.142
	Zscore(Native)	-.132	.025	-.132	-5.314	.000	.874	1.145
4	(Constant)	-1.005E-013	.023		.000	1.000		
	Zscore(Tract_TO_M)	.659	.040	.659	16.613	.000	.329	3.041
	Zscore(OwnerOcc)	.326	.034	.326	9.700	.000	.457	2.187
	Zscore(Native)	-.152	.025	-.152	-6.117	.000	.839	1.192
	Zscore(hs_grad)	-.143	.035	-.143	-4.093	.000	.421	2.375

a. Dependent Variable: Zscore(LOANS_UNIT)

Examining the number of mortgage loans in the Milwaukee MSA in 2014 reveals that the market favors white applicants. Whites make up 70 percent of the population and received 81 percent of the loans, resulting in a disparity ratio of 118 percent. African American applicants fared worst in this mortgage market. While African Americans are 16 percent of the population, they received barely four percent of loans, resulting in a 24 percent disparity ratio. Hispanic borrowers also fared badly. The Hispanic population is over nine percent of the area total, yet they received only four percent of loans, resulting in an unfavorable disparity ratio of 43 percent.

MARKET OVERVIEW LOAN NUMBERS

	Count of Loans				
Race and Ethnicity	**Population**	**Applications**	**Originations**	**Approval Rate**	**Disparity Ratio Loans/Population Size**
White	1,073,109	29,190	20,724	71%	118%
Hispanic	147,503	1,758	1,032	59%	43%
Black	255,779	2,102	998	47%	24%
Asian	45,588	901	595	66%	80%
Total	1,555,908	37,674	25,365	67%	100%
Geography	Milwaukee MSA 2014				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase or Refinancing) and (Occupancy is Owner Occupied) and (Action is Originated or Approved Not Accepted or Denied or Withdrawn or Closed Incomplete)				
Notes	Figures may not equal 100% due to rounding				

When lending is analyzed according to applicant income and the socioeconomic status of residents in the tract, many more loans (77 percent of loans to low- and moderate-income buyers, and 96 percent of loans to middle- and upper-income buyers) were made in census tracts with higher proportions of middle- and upper-income residents. Additionally, tracts with a mostly minority population received 15 percent of loans made to low- and moderate-income buyers, and only three percent of loans to middle- and upper-income buyers. This indicates a highly segmented market, which favors lending to middle- and upper-income purchasers in middle- and upper-income neighborhoods.

LOANS BY BORROWER INCOME

Percent of Applications Across Different Census Tracts	Low- and Moderate-Income (LMI)			Middle- and Upper-Income (MUI)		
	As a Percent of All		Approval Rates	As a Percent of All		Approval Rates
	Applications	Originations		Applications	Originations	
All Tracts	33%	29%	54.97%	67%	71%	66%
Minority Level						
< 10% Minority	34%	36%	59%	55%	57%	68%
10-19% Minority	26%	27%	59%	30%	30%	67%
20-49% Minority	18%	18%	58%	10%	10%	61%
50-79% Minority	10%	9%	47%	3%	2%	56%
80-100% Minority	13%	9%	39%	3%	1%	30%
Tract Income Level						
Low - < 50% MSA/MD Median	7%	4%	34%	1%	1%	32%
Moderate - 50-79.99% MSA/MD Median	22%	20%	50%	6%	5%	46%
Middle - 80-119.99% MSA/MD Median	48%	51%	58%	39%	38%	58%
Upper - 120% or More MSA/MD Median	23%	25%	59%	54%	56%	62%
Geography	Milwaukee MSA 2014					
Lender	All HMDA					
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase or Refinancing) and (Occupancy is Owner Occupied) and (Action is Originated or Approved Not Accepted or Denied or Withdrawn or Closed Incomplete or Purchased)					
Notes	Figures may not equal 100% due to rounding					

THE CITY OF MILWAUKEE

The lower socioeconomic status of neighborhoods in the City of Milwaukee is evident in descriptive statistics related to homeowner occupancy, high school graduation, and income. Additionally, high levels of segregation are present, with neighborhood clusters containing high proportions of African American residents. In fact, the City of Milwaukee rapidly transitioned from white majority in 1990 (60.8 percent) to majority-minority (57 percent) by 2010. Deep segregation, rapid demographic transition, and decreased socioeconomic status of neighborhoods separates the urban areas of the city from their surrounding suburbs.

DESCRIPTIVE STATISTICS

	Range	Minimum	Maximum	Mean	Std. Deviation
LOANS_UNIT	78.37	.00	78.37	9.1717	10.97035
LOANS_POP	42.69	.00	42.69	4.2376	5.23456
Minority %	.90	.09	1.00	.6336	.31271
White %	.9049	.0027	.9076	.366403	.3127136
Black %	.9500	.0073	.9573	.411819	.3589288
Native %	.0179	.0000	.0179	.005525	.0037481
Asian %	.4146	.0000	.4146	.034341	.0480178
OwnerOcc %	.9472	.0027	.9498	.424416	.1951722
Poverty %	.8684	.0159	.8843	.304251	.1654068
Tract_TO_M	195.8500	.0000	195.8500	63.462260	36.6438415
hs_grad %	.6077	.3861	.9938	.798987	.1309655

N=208

Significant bivariate correlations between home mortgage lending and the two predictor variables of higher median family income and increasing numbers of white residents showed very high coefficients of correlation.

		Minority %	White %	Black %	Hispanic %	Asian %	Owner Occupancy %	Poverty %	HS Grad %	Median MFI
Pearson's R	Loans per Unit	-.743**	.743**	-.521**	-.176*	-.083	.532**	-.612**	.607**	.810**
Spearman's rho	Loans per Unit	-.813**	.813**	-.653	.164*	.170*	.624**	-.831**	.769**	.894**

N=208

The regression analysis showed an adjusted R^2 of .732 for home mortgage lending and the predictor variables of median family income, homeowner occupancy, and the race variable of white. The variable for Native Americans was also significant and negative, but due to the low percentage of residents in this category and minimal improvement to the model, it was excluded from the final analysis.

MODEL SUMMARY[E]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.810[a]	.657	.655	.58741028
2	.839[b]	.703	.700	.54735771
3	.858[c]	.736	.732	.51745380
4	.863[d]	.745	.740	.50955341

a. Predictors: (Constant), Zscore(Tract_TO_M)

b. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(White)

c. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(White), Zscore(OwnerOcc)

d. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(White), Zscore(OwnerOcc), Zscore(Native)

e. Dependent Variable: Zscore(LOANS_UNIT)

COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.000E-013	.041		.000	1.000		
	Zscore (Tract_TO_M)	.810	.041	.810	19.847	.000	1.000	1.000
2	(Constant)	-1.001E-013	.038		.000	1.000		
	Zscore (Tract_TO_M)	.585	.055	.585	10.651	.000	.479	2.086
	Zscore (White)	.312	.055	.312	5.679	.000	.479	2.086
3	(Constant)	-1.001E-013	.036		.000	1.000		
	Zscore (Tract_TO_M)	.488	.055	.488	8.818	.000	.422	2.371
	Zscore (White)	.316	.052	.316	6.078	.000	.479	2.086
	Zscore (OwnerOcc)	.204	.041	.204	5.038	.000	.787	1.270
4	(Constant)	-1.001E-013	.035		.000	1.000		
	Zscore (Tract_TO_M)	.463	.055	.463	8.377	.000	.410	2.439
	Zscore (White)	.349	.053	.349	6.639	.000	.453	2.209
	Zscore (OwnerOcc)	.214	.040	.214	5.338	.000	.781	1.280
	Zscore (Native)	-.099	.037	-.099	-2.716	.007	.937	1.068

a. Dependent Variable: Zscore (LOANS_UNIT)

MILWAUKEE SUBURBS

The Milwaukee suburbs provide further indications of hyper-segregation, with the high mean percentage of white residents at 88 percent and low mean percentage of African American residents of just over two percent. The census tract average median family income is 121 percent, compared to the city level of 63 percent. Poverty is just over seven percent in the suburbs versus the city's 30 percent. Education levels of nearly 94 percent high school graduates versus nearly 80 percent present another dimension. All socioeconomic indicators point to substantially better conditions in Milwaukee's suburbs in contrast with the city.

DESCRIPTIVE STATISTICS

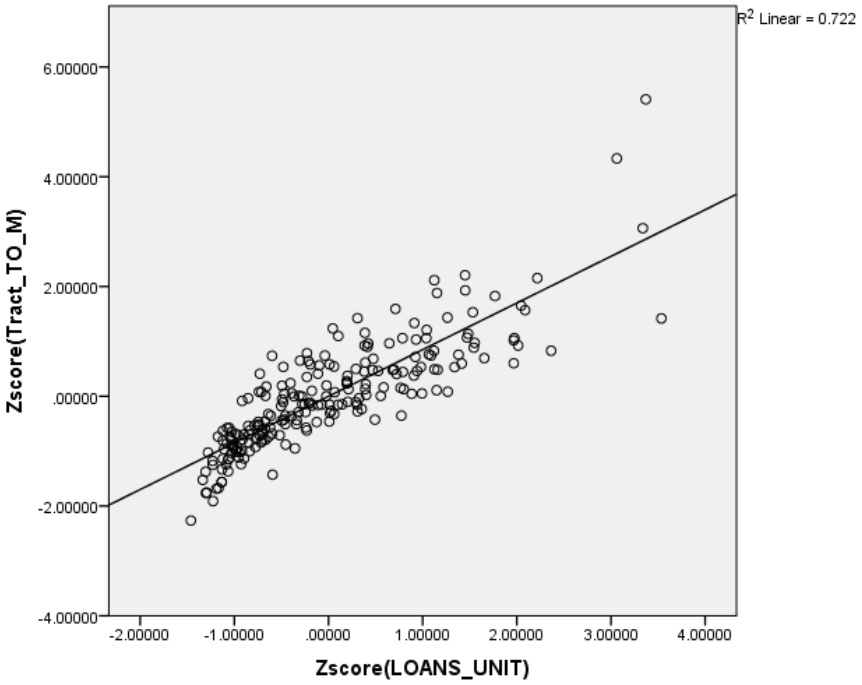
	Minimum	Maximum	Mean	Std. Deviation
Hispanic %	.0103	.3074	.047425	.0437550
White %	.5608	.9698	.887539	.0732762
Black %	.0009	.3323	.022283	.0354887
Native %	.0000	.0180	.003441	.0029355
Asian %	.0014	.1161	.025497	.0213026
OwnerOcc %	.1051	.9800	.719050	.1752052
Poverty %	.0029	.2612	.071891	.0545669
Tract_TO_M	44.7000	303.4700	121.051014	33.7120753
hs_grad %	.7861	1.0000	.939010	.0405683
LOANS_UNIT	2.04	167.54	50.4490	33.12538
LOANS_POP	1.50	65.66	20.8590	12.35087
Minority %	.03	.44	.1125	.07328

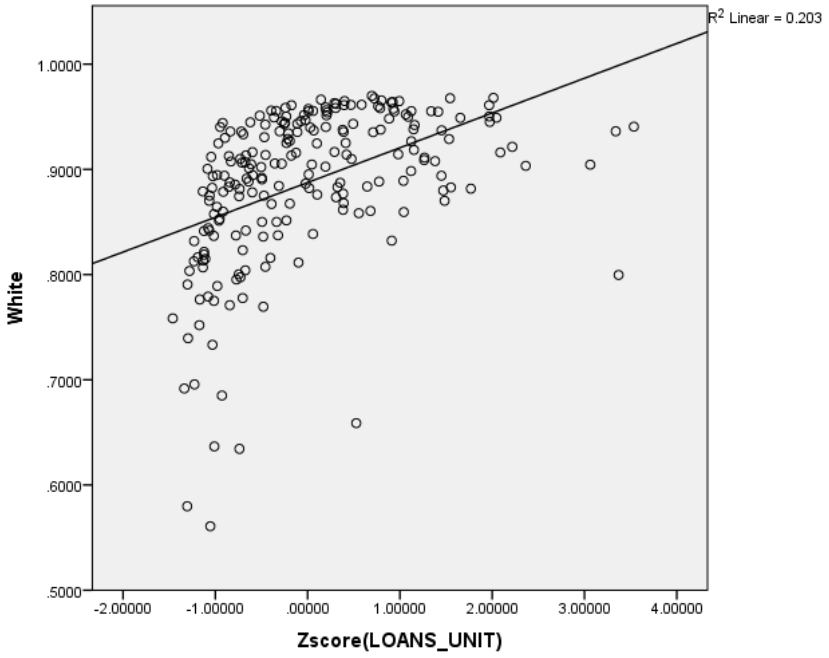
N=217

Bivariate correlations are significant, with high coefficients for median family income, homeowner occupancy and also high school graduate levels and the amount of home mortgage lending in the suburbs. Scatterplots for median family income and mortgage lending produce an r^2 of .722.

		Minority %	White %	Black %	Hispanic %	Asian %	Owner Occupancy %	Poverty %	HS Grad %	Median MFI
Pearson's R	Loans per Unit	-.451**	.451**	-.201**	-.533**	.061	.759**	-.650**	.654**	.850**
Spearman's rho	Loans per Unit	-.572**	.572**	-.452**	-.758**	.028	.830**	-.769**	.741**	.874**

N=217





Regression modeling results in a very high adjusted R^2 of .792 for mortgage lending and the predictor variables for median family income and homeowner occupancy. Race is a less significant predictor of lending in the Milwaukee suburbs than it was in the city.

MODEL SUMMARY[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.850[a]	.722	.721	.52859806
2	.891[b]	.794	.792	.45565515

a. Predictors: (Constant), Zscore(Tract_TO_M)

b. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc)

c. Dependent Variable: Zscore(LOANS_UNIT)

COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.008E-013	.036		.000	1.000		
	Zscore (Tract_TO_M)	.850	.036	.850	23.623	.000	1.000	1.000
2	(Constant)	-1.005E-013	.031		.000	1.000		
	Zscore (Tract_TO_M)	.617	.041	.617	15.062	.000	.573	1.746
	Zscore (OwnerOcc)	.356	.041	.356	8.680	.000	.573	1.746

a. Dependent Variable: Zscore (LOANS_UNIT)

CONCLUSION

Home mortgage lending in Milwaukee's suburbs is mostly predicted by socioeconomic considerations: higher median family income, high rates of owner-occupancy, and higher educational attainment. This situation contrasts with the statistical model of the city, where race and income seem to matter the most. The maps and statistical results for Milwaukee reflect the hyper-segregated and impoverished circumstances in many city neighborhoods.

Minneapolis and Surrounding Areas

EXECUTIVE SUMMARY

Seeming to buck the trend of many industrial U.S. cities, Minneapolis, Minnesota has developed a vibrant economy while increasing its racial and ethnic diversity. Contrasted with the other cities in this report, Minneapolis is not hyper-segregated and is more economically prosperous. This growth provides some indication, discussed below, that Minneapolis continues the process of suburbanization of its outer ring communities.

In both the city and the surrounding counties, median family income appears to be the driving factor in determining the level of mortgage activity. However, a pattern emerges when viewing home purchase lending at the metropolitan statistical area (MSA) level. An outer ring of communities in semi-rural areas surrounding the I-694 perimeter is clearly visible, in which mortgages per unit over the three-year study period stand at well over 30 percent. This is twice what is seen in the city, with the exception of downtown Minneapolis. At this level, these "exurbs" are the site of a disproportionate amount of investment, drawing capital away from the city.

NCRC analysis indicates that the variables most correlated with loan activity are the median family income and owner occupancy rate of the neighborhood. In addition, the number of loans made to African American and Hispanic families falls short of the size of their share of the population. In outer neighborhoods, certain trends of investment and disinvestment become visible, trends which seem to put the area on the track towards a bifurcated metro economy with significant disparities.

NCRC has found an extensive mortgage lending imbalance in Minneapolis. Within the City of Minneapolis, the race of the neighborhood is an important predictor of the amount of mortgage lending activity. Although median family income is significantly correlated and a stronger predictor of mortgage lending, race (white) is also an important predictor in our model. This relationship between race and income is probably due to the higher median family income of white families in the neighborhoods analyzed. This means that as lenders concentrate lending in wealthier neighborhoods they tend to ignore the lower income neighborhoods, which are home to more African American families. If unchecked, this process creates more segregation, as African American families are concentrated in neighborhoods that see little to no investment from lenders.

To help address this problem, NCRC is calling for stronger enforcement and expansion of the Community Reinvestment Act (CRA) and the preservation and strengthening of the affordable housing goals in the secondary mortgage market.

KEY FINDINGS

- With an index of dissimilarity of 64.5 for African Americans and whites, Minneapolis is one of the more desegregated cities we have reviewed, including St. Louis, Milwaukee, and Baltimore.[1,2]
- In the City of Minneapolis, African Americans comprise 18 percent of the overall population and Latinos are 10 percent. Suburban areas of the Minneapolis MSA are 83 percent white. **While there is evidence of segregation in Minneapolis, with the southern part of the city nearly 100 percent white**, the variable that best predicts home loan activity is not race but the median family income of the neighborhood.
- Examining the number of loans in the Minneapolis MSA in 2014 reveals that the market **favors white applicants slightly. Whites make up 78 percent of the population, and they received 80 percent of loans. This is a slightly favorable disparity ratio of 102 percent. African Americans, who make up just over seven percent of the population and received two percent of loans, fared the worst with an unfavorable disparity ratio of 28 percent.** Hispanic borrowers, who make up five percent of the population and received a little over two percent of loans, also had an unfavorable disparity ratio of 41 percent.
- While loans in the City of Minneapolis and surrounding areas were visibly less in lower-income census tracts, this was not uniformly so, and some areas of moderate income in fact saw extensive investment.
- Across both the city and the MSA, the level of owner occupancy and the median family income were significantly correlated with lending activity; however, **a large imbalance in lending toward the exurban ring outside of the beltway cannot be ignored. This imbalance is draining the tax bases of communities such as Minneapolis and St. Paul.**
- **Other studies suggest that it is difficult for qualified borrowers of any race to secure credit in high-poverty, hyper-segregated areas.**[3] These areas place a strain on public services due to their decreased tax revenue, aging infrastructure, and increased demand for services. As a result, public services may fail or be scaled back, with the segregated area becoming one of concentrated poverty to the detriment of other parts of the MSA.[4]

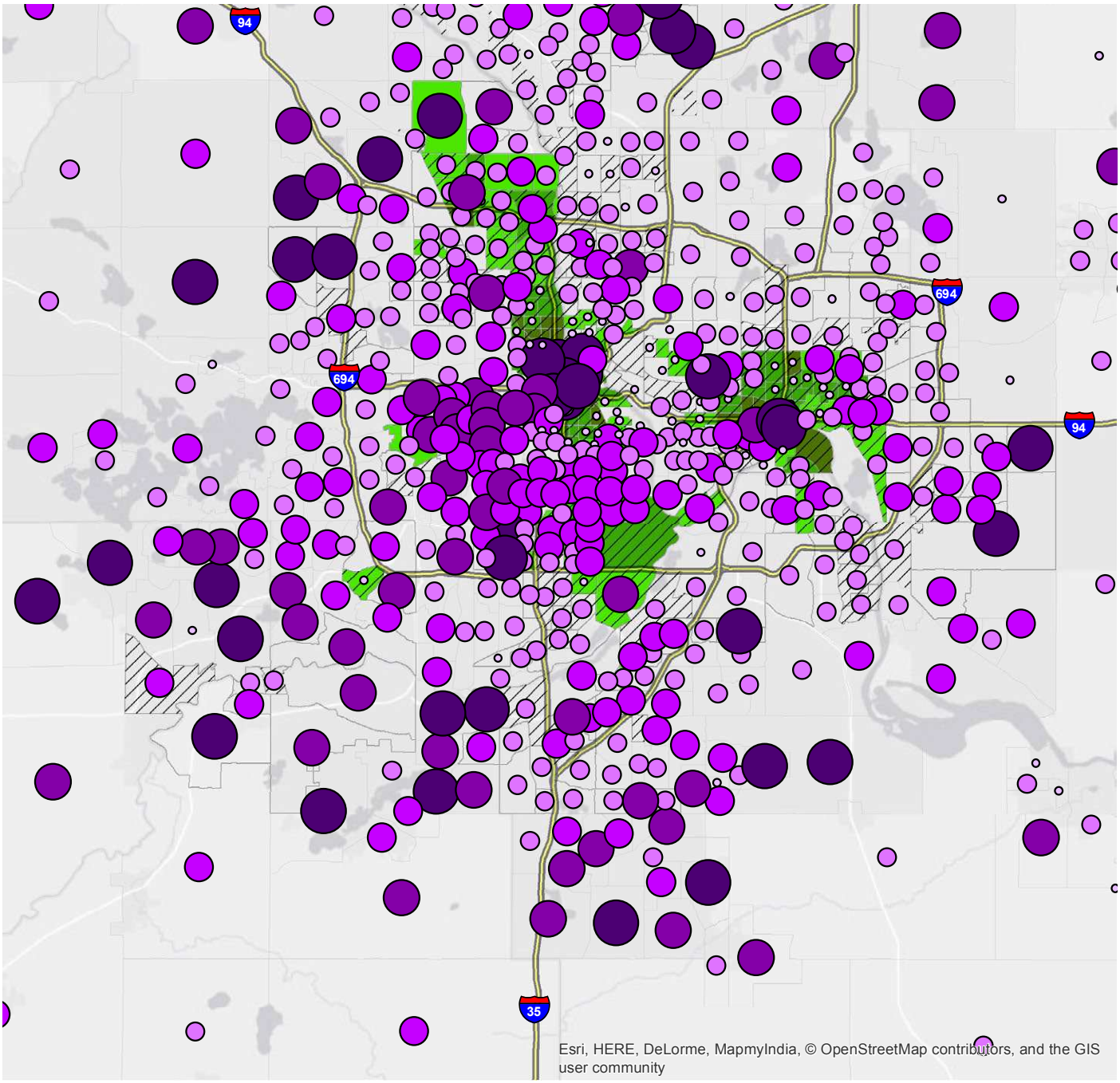
1 Douglas S. Massey, "Residential Segregation and Neighborhood Conditions in U.S. Metropolitan Areas," *America Becoming: Racial Trends and Their Consequences* 1.1 (2001): 391-434.

2 "Segregation: Dissimilarity Indices," CensusScope.

3 Elvin K. Wyly, Mona Atia, Holly Foxcroft, Daniel J. Hamme, and Kelly Phillips-Watts, "American home: Predatory mortgage capital and neighbourhood spaces of race and class exploitation in the United States," *Geografiska Annaler: Series B, Human Geography* 88.1 (2006): 105-132.

4 Tanvi Misra, "America Has Half as Many Hypersegretated Metros as it Did in 1970," *CityLab,* May 21, 2015.

Home Purchase Mortgage Lending in the Minneapolis/St. Paul MSA



Census Tract
Home Purchase Loans
per 100 Houses 2012-2014

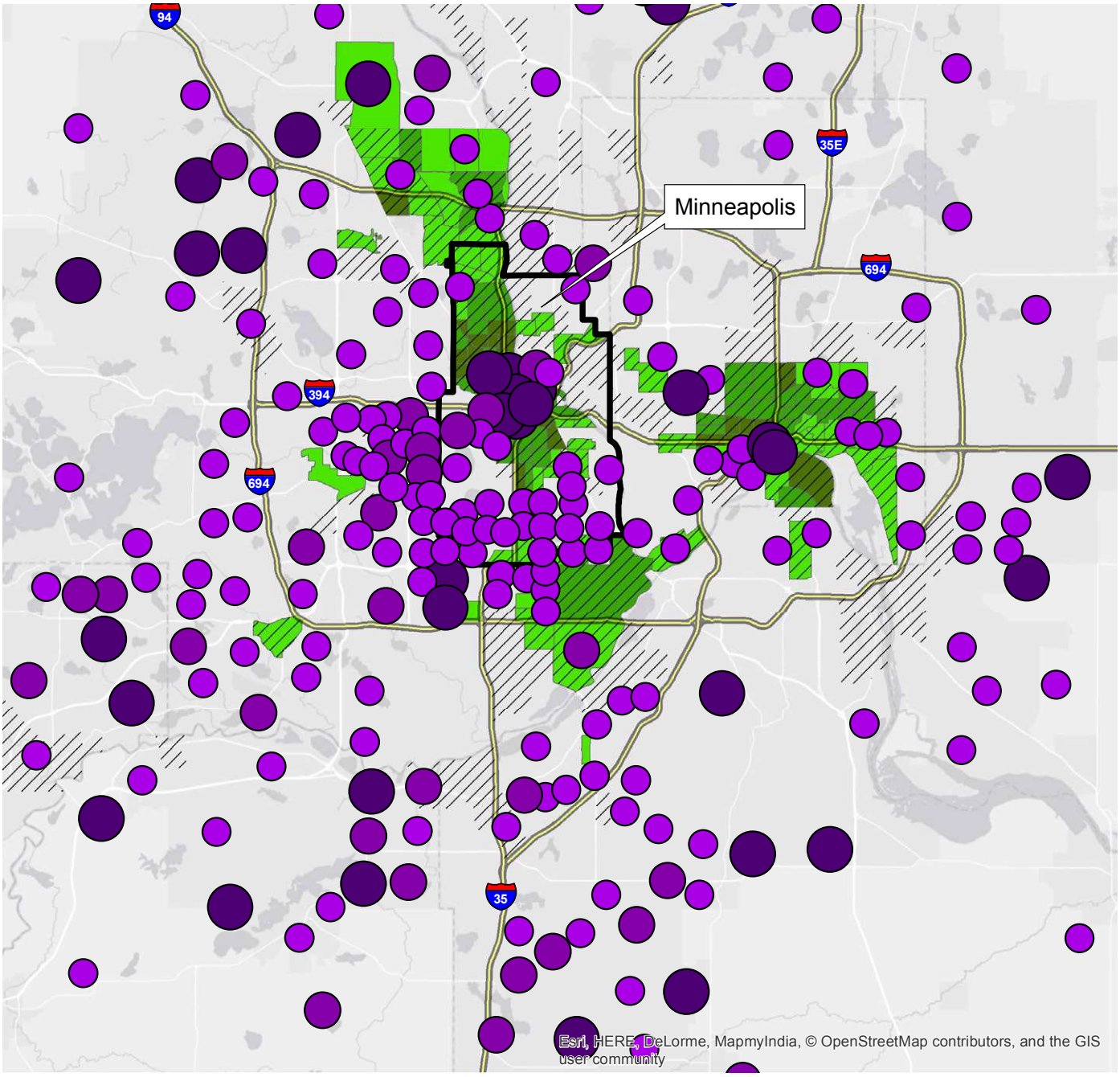
- 6 - 8
- 9 - 12
- 13 - 15
- 16 - 20
- 21 - 287

Minority Population
All except non-Hispanic White

- 80% - 100%
- 60% - 80%
- 40% - 60%
- Low or Moderate Income

Mortgage lending in the Minneapolis/St. Paul region during the period from 2012-2014 appears to be more evenly distributed and widespread than it was for either St. Louis or Milwaukee.

Home Purchase Mortgage Lending in High Activity Areas of Minneapolis/St. Paul



Census Tract Home Purchase Loans per 100 Houses 2012-2014

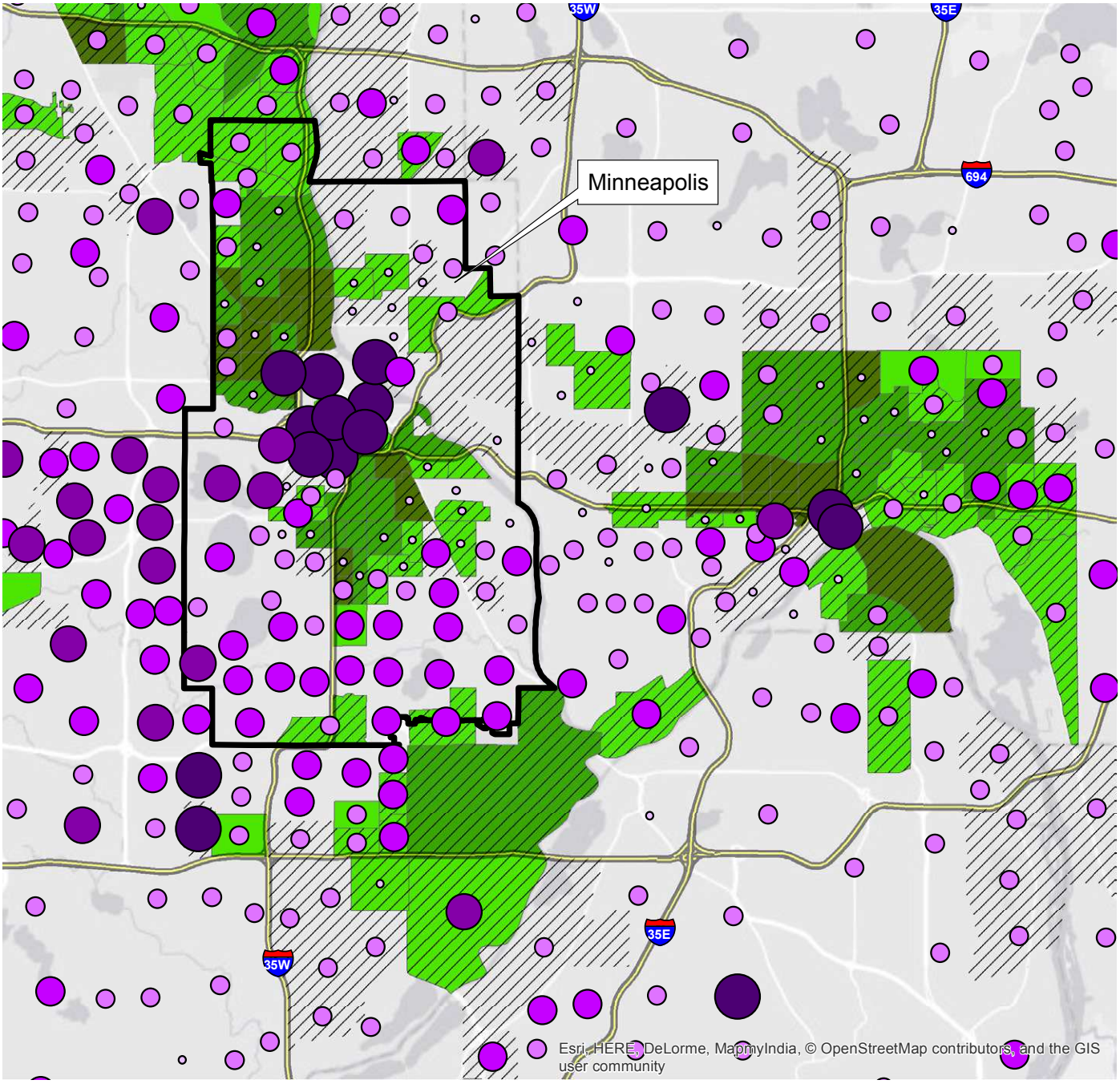
- 13 - 15
- 16 - 20
- 21 - 287

Minority Population All except non-Hispanic White

- 80% - 100%
- 60% - 80%
- 40% - 60%
- Low or Moderate Income
- Minneapolis Boundary

When we concentrate just on the higher volume census tract, some metro-level patterns emerge. Lending is concentrated in the downtown core and majority white, upper-income areas of Minneapolis, and then we see a jump to a ring of outer "exurbs." Semi-rural and detached from the city, they are majority white and middle -to upper-income and are where the majority of the regional mortgage activity is concentrated.

Home Purchase Mortgage Lending in Downtown Minneapolis/St. Paul



Census Tract Home Purchase Loans per 100 Houses 2012-2014

- 6 - 8
- 9 - 12
- 13 - 15
- 16 - 20
- 21 - 287

Minority Population All except non-Hispanic White

- 80% - 100%
- 60% - 80%
- 40% - 60%
- Low or Moderate Income
- Minneapolis Boundary

This map focuses on the Twin Cities of Minneapolis and St. Paul, showing high levels of mortgage lending in the downtown core during the 2012 – 2014 period. There appears to be reduced lending activity in some of the surrounding neighborhoods with lower income levels and higher percentages of minorities.

MINNEAPOLIS/ST. PAUL MSA ANALYSIS

The Twin Cities of Minneapolis/St. Paul differ from the other cities in this survey by their high rates of economic and demographic expansion. They have a growing population, increasing from 1.6 million in 1960 to 2.9 million in 2000. This urban growth corresponds with economic expansion and low rates of unemployment. Both Minneapolis and St. Paul have retained substantial numbers of predominantly white neighborhoods in their downtowns, resulting in lower levels of segregation. The index of dissimilarity for Minneapolis/St. Paul is only 64.5 for African Americans and whites. For Hispanic and white residents, however, the index is higher at 50.3 than either St. Louis (36.7) or Baltimore (40.3).

Groups	Index of Dissimilarity*
Asian/white	38.5
Hispanic/others	50.3
Black/white	64.5

*Taken from a Brown University study (2010 U.S. Census data): http://www.s4.brown.edu/us2010

Lower levels of African American/white segregation are borne out by the descriptive statistics, which show the highest percentage of African American residents in a census tract is 72 percent. Overall, minorities comprise 23 percent of the population of the metro area. The poverty rate is also low, with a mean of 11.9 percent, and the median family income level almost matches the average, with 99.5 percent being the mean for the area.

DESCRIPTIVE STATISTICS

	Minimum	Maximum	Mean	Std. Deviation
LOAN_UNIT	.0000	243.6340	47.449463	35.4193320
LOAN_POP	.0000	89.2957	19.233658	13.2797864
Hispanic %	.0058	.4493	.059370	.0656219
White %	.0279	.9816	.767938	.2009658
Black %	.0008	.7200	.082550	.1105514
Native %	.0000	.3641	.006977	.0162754
Asian %	.0011	.4290	.057431	.0644321
hopi %	.0000	.0266	.000397	.0010927
OwnerOcc %	.0221	.9823	.705844	.2192497
Poverty %	.0000	.7206	.118903	.1142826
Tract_TO_M	.0000	263.5900	99.564344	35.9813687
hs_grad %	.4445	1.0000	.919000	.0786242
Minority %	.0184	.9721	.232062	.2009658

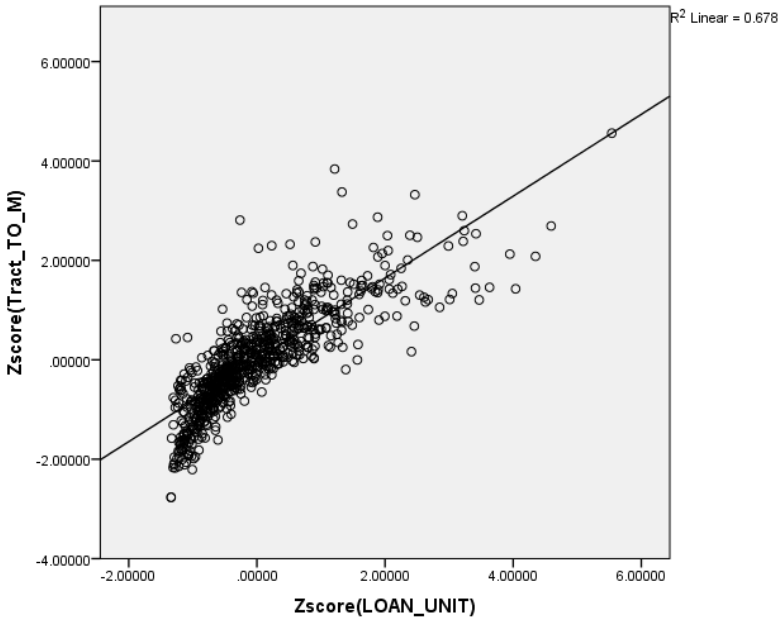
N=785

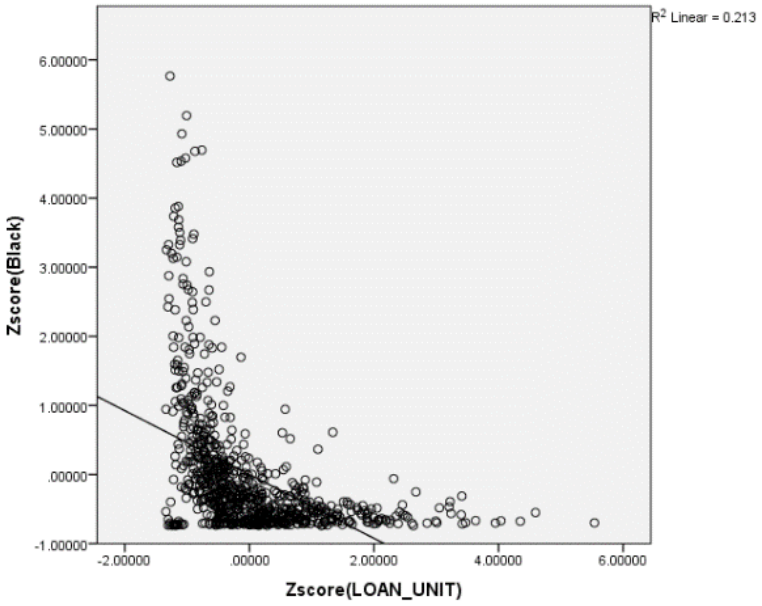
Considering mortgage lending per unit of housing, we find significant positive correlations with socioeconomic factors of median family income and homeowner occupancy, both indicators of greater wealth. Racial and ethnic factors also have significant and negative associations with home mortgage lending. The coefficients of determination associated with both the African American and Hispanic population of the tract are significant, but only to a moderate degree in comparison to owner occupancy and median family income.

		Minority %	White %	Black %	Hispanic %	Asian %	Owner Occupancy %	Poverty %	HS Grad %	Median MFI
Pearson's R	Loans per Unit	-.506**	.506**	-.462**	-.407**	-.230**	.623**	-.579**	.546**	.823**
Spearman's rho	Loans per Unit	-.616**	.616**	-.600**	-.615**	-.226**	.758**	-.795**	.745**	.882**

N=785

Examination of scatterplots depicting loans per tract per unit of housing revealed much stronger linear relationships for the socioeconomic than for the racial and ethnic variables. The median family income level per tract had a significant positive r^2 of .678, while the relationship of African American residents per tract with loan volume was significant and negative with an r^2 of .213.





A regression model was prepared to examine the relationship of home mortgage lending with the socioeconomic and demographic variables. The strongest model combined per-tract median family income and levels of homeowner occupancy with an adjusted $R^2 = .701$ when examining the entire Minneapolis/St. Paul MSA as one unit. Another model including white residents achieves a slightly higher adjusted R^2; however, the white variable switched signs to become negative. This indicates multicollinearity in the model, or a confounding of the variables. Due to this inconsistency, and to achieve a more parsimonious model, the white variable was excluded from the final model.

MODEL SUMMARY[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823[a]	.678	.677	.56820710
2	.838[b]	.701	.701	.54712834
3	.844[c]	.712	.711	.53746093
4	.845[d]	.715	.713	.53549709

a. Predictors: (Constant), Zscore(Tract_TO_M)

b. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc)

c. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc), Zscore(White)

d. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc), Zscore(White), Zscore(Poverty)

e. Dependent Variable: Zscore(LOAN_UNIT)

COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.013E-013	.020		.000	1.000
	Zscore(Tract_TO_M)	.823	.020	.823	40.562	.000
2	(Constant)	1.014E-013	.020		.000	1.000
	Zscore(Tract_TO_M)	.705	.025	.705	28.667	.000
	Zscore(OwnerOcc)	.194	.025	.194	7.905	.000
3	(Constant)	1.029E-013	.019		.000	1.000
	Zscore(Tract_TO_M)	.765	.027	.765	28.773	.000
	Zscore(OwnerOcc)	.253	.026	.253	9.560	.000
	Zscore(White)	-.149	.027	-.149	-5.421	.000
4	(Constant)	1.025E-013	.019		.000	1.000
	Zscore(Tract_TO_M)	.786	.028	.786	28.379	.000
	Zscore(OwnerOcc)	.287	.029	.287	9.759	.000
	Zscore(White)	-.111	.031	-.111	-3.560	.000
	Zscore(Poverty)	.095	.037	.095	2.596	.010

a. Dependent Variable: Zscore (LOAN_UNIT)

The analysis of mortgage loans from 2014 indicates some disparity between white and African American borrowers. Whites make up 78 percent of the population, and they received 80 percent of loan, resulting in a disparity ratio of 102 percent. Meanwhile, African Americans, who make up just over seven percent of the population and received two percent of loans, fared the worst with a disparity ratio of 28 percent. Hispanic borrowers, who make up five percent of the population and received a little over two percent of loans, also had an unfavorable disparity ratio of 41 percent. However, approval rates for these groups were higher, relative to whites, than for other urban areas like Baltimore, Milwaukee and St. Louis. African Americans and Hispanics had approval rates of 57 percent and 65 percent, respectively.

MARKET OVERVIEW LOAN NUMBERS

	Count of Loans				
Race and Ethnicity	**Population**	**Applications**	**Originations**	**Approval Rate**	**Disparity Ratio Loans/ Population Size**
White	2,522,066	77,318	56,411	73%	102%
Hispanic	176,887	2,433	1,589	65%	41%
Black	238,353	2,559	1,452	57%	28%
Asian	186,172	4,507	3,038	67%	75%
Total	3,223,495	100,042	70,452	70%	100%
Geography	Minneapolis MSA 2014				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase or Refinancing) and (Occupancy is Owner Occupied) and (Action is Originated or Approved Not Accepted or Denied or Withdrawn or Closed Incomplete)				
Notes	Figures may not equal 100% due to rounding				

Looking at applicant and neighborhood economic status reveals preferences for middle- and upper-income tracts among all racial and ethnic groups. Approval rates for low- to moderate-income applicants and middle- to upper-income applicants were closer than in Baltimore, Milwaukee or St. Louis, at 68 percent and 73 percent, respectively. A majority of originations were for mortgages on properties located in middle- and upper-income level neighborhoods, at 76% and 92% for low- to moderate-income and middle- to upper-income borrowers, respectively. Additionally, applications from people of all incomes indicate preference for neighborhoods with lower percentages of minority residents, though loan approval rates there were higher than in other metro areas.

LOANS BY BORROWER INCOME

Percent of Applications Across Different Census Tracts	Low to Moderate Income			Middle to Upper Income		
	As a Percent of All		Approval Rates	As a Percent of All		Approval Rates
	Applications	Originations		Applications	Originations	
All Tracts	40%	39%	67.76%	60%	61%	73%
Minority Level						
< 10% Minority	31%	31%	67%	36%	36%	73%
10-19% Minority	30%	31%	69%	39%	40%	74%
20-49% Minority	28%	29%	69%	23%	23%	73%
50-79% Minority	9%	8%	64%	1%	2%	130%
80-100% Minority	2%	1%	56%	0%	0%	114%
Tract Income Level						
Low - < 50% MSA/MD Median	4%	4%	61%	1%	1%	61%
Moderate - 50-79.99% MSA/MD Median	20%	20%	66%	8%	7%	66%
Middle - 80-119.99% MSA/MD Median	56%	57%	69%	45%	45%	70%
Upper - 120% or More MSA/MD Median	20%	19%	68%	46%	47%	72%
Geography	Minneapolis MSA 2014					
Lender	All HMDA					
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase or Refinancing) and (Occupancy is Owner Occupied) and (Action is Originated or Approved Not Accepted or Denied or Withdrawn or Closed Incomplete)					
Notes	Figures may not equal 100% due to rounding					

THE CITIES OF MINNEAPOLIS/ST. PAUL

A comparative analysis of the urban core and surrounding suburbs was conducted to determine whether there were substantial differences between the inner-city areas and suburbs. The descriptive statistics indicate lower percentages of whites live in the city, at just 57 percent. Urban residents also have lower socioeconomic status, with only 50 percent homeowner occupancy and a lower tract mean of median family income at 78.9 percent.

DESCRIPTIVE STATISTICS

	Range	Minimum	Maximum	Mean	Std. Deviation
Hispanic %	.4349	.0144	.4493	.101194	.0904595
White %	.8879	.0279	.9158	.572246	.2511032
Black %	.7109	.0091	.7200	.183501	.1560880
Native %	.1820	.0000	.1820	.013305	.0163148
Asian %	.4135	.0155	.4290	.092747	.0978701
OwnerOcc %	.9103	.0221	.9324	.500757	.2307537
Poverty %	.7137	.0069	.7206	.234001	.1530870
Tract_TO_M	237.6500	.0000	237.6500	78.881320	43.6515445
hs_grad %	.5555	.4445	1.0000	.861463	.1171667
LOANS_UNIT	134.78	.00	134.78	27.9497	25.41003
LOANS_POP	55.41	.00	55.41	12.9253	12.08856
Minority %	.89	.08	.97	.4278	.25110

N=197

Next, an analysis of bivariate associations for the number of mortgage loans was conducted. This shows that higher median family income is a significant indicator of higher rates of mortgage lending. It also has the strongest relationship, as measured by the much higher coefficient of correlation.

		Minority %	White %	Black %	Hispanic %	Asian %	Owner Occupancy %	Poverty %	HS Grad %	Median MFI
Pearson's R	Loans per Unit	-.671**	.671**	-.549**	-.362**	-.419**	.669**	-.699**	.593**	.856**
Spearman's rho	Loans per Unit	-.761**	.761**	-.714**	-.441**	-.554**	.774**	-.866*	.719**	.859**

N=197

A regression model was then constructed, indicating that the same two variables which were significant at the MSA level were also the best predictors at the city level: median family income and homeowner occupancy. The Asian race variable was also significant, but rejected from the model due to collinearity and its marginal improvement of model goodness-of-fit.

MODEL SUMMARY[f]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.856[a]	.733	.732	.51760409
2	.897[b]	.805	.803	.44419673
3	.901[c]	.811	.808	.43807434
4	.905[d]	.819	.815	.43021339
5	.907[e]	.822	.818	.42695892

a. Predictors: (Constant), Zscore(Tract_TO_M)

b. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc)

c. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc), Zscore(Asian)

d. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc), Zscore(Asian), Zscore(hs_grad)

e. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc), Zscore(Asian), Zscore(hs_grad), Zscore(White)

f. Dependent Variable: Zscore(LOANS_UNIT)

COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.005E-013	.037		.000	1.000		
	Zscore(Tract_TO_M)	.856	.037	.856	23.164	.000	1.000	1.000
2	(Constant)	1.002E-013	.032		.000	1.000		
	Zscore(Tract_TO_M)	.696	.037	.696	18.820	.000	.735	1.360
	Zscore(OwnerOcc)	.311	.037	.311	8.413	.000	.735	1.360
3	(Constant)	1.002E-013	.031		.000	1.000		
	Zscore(Tract_TO_M)	.660	.039	.660	16.813	.000	.636	1.572
	Zscore(OwnerOcc)	.313	.036	.313	8.578	.000	.735	1.360
	Zscore(Asian)	-.087	.034	-.087	-2.542	.012	.832	1.202
4	(Constant)	1.006E-013	.031		.000	1.000		
	Zscore(Tract_TO_M)	.731	.046	.731	15.922	.000	.448	2.230
	Zscore(OwnerOcc)	.327	.036	.327	9.047	.000	.721	1.387
	Zscore(Asian)	-.130	.037	-.130	-3.525	.001	.693	1.442
	Zscore(hs_grad)	-.136	.048	-.136	-2.849	.005	.413	2.419
5	(Constant)	1.007E-013	.030		.000	1.000		
	Zscore(Tract_TO_M)	.689	.050	.689	13.709	.000	.369	2.713
	Zscore(OwnerOcc)	.333	.036	.333	9.234	.000	.717	1.394
	Zscore(Asian)	-.105	.039	-.105	-2.724	.007	.622	1.609
	Zscore(hs_grad)	-.213	.061	-.213	-3.478	.001	.247	4.047
	Zscore(White)	.138	.069	.138	1.984	.049	.193	5.171

a. Dependent Variable: Zscore(LOANS_UNIT)

MINNEAPOLIS/ST. PAUL SUBURBS

In contrast with the city, the surrounding suburbs have a higher percentage of white residents, with a mean of 83 percent, and greater wealth, with a homeowner occupancy rate of 77 percent and median family income that is 106 percent of the average. This could be due to the lower levels of disparity within the suburban tracts with their lower standard deviation for the socioeconomic variables of median family income and homeowner occupancy.

DESCRIPTIVE STATISTICS

	Range	Minimum	Maximum	Mean	Std. Deviation
Hispanic %	.4009	.0058	.4067	.045357	.0472800
White %	.8074	.1742	.9816	.833502	.1254193
Black %	.5106	.0008	.5113	.048728	.0601844
Native %	.3641	.0000	.3641	.004857	.0157152
Asian %	.3227	.0011	.3238	.045598	.0422807
hopi %	.0266	.0000	.0266	.000381	.0012112
OwnerOcc %	.9533	.0291	.9823	.774555	.1660685
Poverty %	.3816	.0000	.3816	.080341	.0606878
Tract_TO_M	263.5900	.0000	263.5900	106.493861	30.0208359
hs_grad %	.4343	.5657	1.0000	.938277	.0467900
LOANS_UNIT	243.63	.00	243.63	53.9825	35.91101
LOANS_POP	89.30	.00	89.30	21.3472	12.99666
Minority %	.81	.02	.83	.1665	.12542

N=588

Bivariate correlations show significant and positive relationships between homeowner occupancy and median family income with home mortgage lending. Race and ethnicity are also significant factors, though the negative relationship between higher percentages of African American and Hispanic residents in a tract and lending had a lower coefficient of correlation.

		Minority %	White %	Black %	Hispanic %	Asian %	Owner Occupancy %	Poverty %	HS Grad %	Median MFI
Pearson's R	Loans per Unit	-.370**	.370**	-.373**	-.147**	-.029	.563**	-.559**	.558**	.838**
Spearman's rho	Loans per Unit	-.429**	.429**	-.432**	-.529**	-.028	.704**	-.721**	.711**	.864**

N=588

A regression model produced the best goodness-of-fit when the predictor variables of higher median family income and homeowner occupancy were considered. The adjusted R^2 of this model was .715, showing a slightly weaker model than the one for the city areas.

MODEL SUMMARY[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.838[a]	.702	.701	.54644879
2	.846[b]	.716	.715	.53417789
3	.849[c]	.720	.719	.53039216

a. Predictors: (Constant), Zscore(Tract_TO_M)

b. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc)

c. Predictors: (Constant), Zscore(Tract_TO_M), Zscore(OwnerOcc), Zscore(Hispanic)

d. Dependent Variable: Zscore(LOANS_UNIT)

COEFFICIENTS[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.008E-013	.023		.000	1.000		
	Zscore(Tract_TO_M)	.838	.023	.838	37.146	.000	1.000	1.000
2	(Constant)	-1.003E-013	.022		.000	1.000		
	Zscore(Tract_TO_M)	.760	.027	.760	28.654	.000	.692	1.446
	Zscore(OwnerOcc)	.141	.027	.141	5.313	.000	.692	1.446
3	(Constant)	-1.002E-013	.022		.000	1.000		
	Zscore(Tract_TO_M)	.783	.027	.783	28.558	.000	.637	1.569
	Zscore(OwnerOcc)	.165	.027	.165	6.008	.000	.634	1.577
	Zscore(Hispanic)	.079	.026	.079	3.063	.002	.716	1.397

a. Dependent Variable: Zscore(LOANS_UNIT)

CONCLUSION

Despite its lower levels of segregation, and the diffused pattern of home mortgage lending in the maps, Minneapolis was impacted by some of the same factors as the other cities of this report (St. Louis and Milwaukee), albeit not as consistently. The bivariate correlations for race and ethnicity with mortgage lending were significant, but had much lower coefficients of correlation when contrasted with income. In the regression model, median family income and owner-occupancy were the strongest predictors of lending, though ethnicity (Hispanic) was an important predictor in the suburban model. In conclusion, Minneapolis/St. Paul undergoes continuing suburbanization as it expands its outer-ring suburbs, a process which intensified segregation during previous eras of U.S. urban development. This possible trend should be closely analyzed as the cities continue their expansion.