

NCRC



OPENING DOORS TO
ECONOMIC OPPORTUNITY

Home Mortgage and Small Business Lending in Baltimore and Surrounding Areas

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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.

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EXECUTIVE SUMMARY

The death of Freddie Gray in police custody in April of 2015 resulted in wide-scale unrest and protest and shook the neighborhood of Sandtown-Winchester, Baltimore City, and the American conscience. This event and the circumstances in that neighborhood are deeply rooted in the economics of the community. Conditions in many areas of Baltimore are an example of the disinvestment and lack of access to opportunity over the course of decades. Reinvestment in our communities is a public policy commitment enshrined in such laws as the Community Reinvestment Act (CRA), the Fair Housing Act (FHA), the Equal Credit Opportunity Act (ECOA), and the Home Mortgage Disclosure Act (HMDA). When financial institutions do not live up to these requirements, and do not invest in an area and its residents, it can lead to continued and concentrated poverty in places like Baltimore, MD.¹

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

This report, *Home Mortgage and Small Business Lending in Baltimore and Surrounding Areas*, details lenders' abandonment of neighborhoods in Baltimore based upon the race of members of those neighborhoods and the preferences of lenders for white borrowers and majority white neighborhoods. Using maps, statistical analyses, and public data, the National Community Reinvestment Coalition (NCRC) presents an alarming picture of Baltimore. Located in one of the wealthiest states in the U.S., and amidst some of the wealthiest counties in that state, the economic circumstances in Baltimore are an anomaly, raising questions about why lending occurs in some areas and not others. **At the heart of this report is the role of race in Baltimore. NCRC's analysis clearly shows that while majority white neighborhoods are sites of robust lending activity, majority black neighborhoods are consistently excluded from lending activity.** This sets Baltimore apart from the surrounding areas, and keeps it mired in poverty while surrounded by healthy, vibrant communities. As Professor Elvin Wyly notes, this leaves areas of disinvestment, such as West Baltimore, as "islands of decay in a sea of renewal."^{2,3}

1 Richard Florida, "America's Biggest Problem is Concentrated Poverty, Not Inequality," CityLab, August 10, 2015.

2 Elvin K. Wyly and Daniel J. Hammel, "Islands of Decay in Seas of Renewal: Housing Policy and the Resurgence of Gentrification," Housing Policy Debate 10.4 (1999): 711-771.

3 According to the ESRI, a data aggregator, the median net worth of families in Howard County is \$310,662, or 468 percent of the national average. In Anne Arundel the median net worth is \$204,385, or 308 percent of the national average. Baltimore County reports a median family net worth of \$111,617 or 168 percent of the national average. Meanwhile, the city of Baltimore has a median family net worth of \$17,839, or 27 percent of the national average. <http://arcg.is/1QWafd9>.

MAJOR FINDINGS OF THE REPORT:

- **Disinvestment in most of the city and affluence in the suburbs.** Baltimore and the surrounding suburban counties show very different patterns of home purchase and small business lending.
- **In the suburbs, economics matter the most in mortgage lending.** The factors that are most useful in predicting home purchase lending activity are economic: median family income and the level of owner-occupancy in a neighborhood.
- **In Baltimore City, race matters most in mortgage lending.** Consistently across models, the most statistically significant factor in predicting mortgage lending is race. Mortgage lending is greater in neighborhoods with larger white than African American populations.
- **There are tremendous disparities in home lending for African American and white residents of Baltimore City.** The disparity ratio of loans to percentage of population is 210 percent for whites and 37 percent for African Americans.
- **It's much harder to get a mortgage loan in the poorer neighborhoods.** In Baltimore City, 70 percent of census tracts are low-to-moderate income (LMI), yet it is very difficult for borrowers of any income to be approved there, especially if they are African American.
- **Mortgage lending flows to wealthier areas.** An LMI applicant is 30 percent more likely to be approved for a mortgage loan in a middle- or upper-income area of Baltimore County than in an LMI neighborhood of Baltimore City.
- Small business data seems to follow similar trends; however, the statistical analysis was inconclusive.



Condo development across the Patapsco River from Fells Point and the Inner Harbor. Photo: Elvin Wyly



Near the corner of E Chase St. and Collington Ave. in East Baltimore, just blocks north of Johns Hopkins Hospital. Photo: Robyn Dorsey

THE NEED FOR REINVESTMENT IN BALTIMORE

On April 12, 2015, Freddie Gray was arrested and died in Baltimore police custody in the Sandtown-Winchester neighborhood of West Baltimore.⁴ In response, residents of West Baltimore began holding protests on April 19, 2015, against not only the police but also the lack of opportunity in those neighborhoods.

The protests and rallies that followed gave the rest of America a glimpse into the unrest and discontent that Baltimore residents had been living with for so long. What received almost no attention was one of the deep-seated reasons behind the protests: the systematic disinvestment in Baltimore.

When home loans, small business credit, and community services are absent, as they are in much of Baltimore, the results are concentrated poverty, lack of opportunity, and growing frustration. As one Baltimore resident said in an April 2015 news story:

“We’re ... angry at the surroundings. Like this is all that is given to us, and we’re tired of this, like nobody wants to wake up and see broken-down buildings...”⁵

Ultimately, the residents of Baltimore are best benefited by reinvestment offered by responsible and affordable credit options that long ago vanished from these neighborhoods.⁶



Near the corner of W Franklin St. and N Monroe St., West Baltimore.
Photo: Robyn Dorsey



Harbor East, location of several new projects by for-profit developers.
Photo: Robyn Dorsey

4 Scott Shane, “[Baltimore Riots Are Another Scar on a City Long Battered by Neglect](#),” The New York Times, April 28, 2015.

5 Sheryl Gay Stolberg, “[Crowds Scatter as Baltimore Curfew Takes Hold](#),” The New York Times, April 28, 2015.

6 Scott Malone, Ian Simpson, and Warren Strobel, “[Marchers protest violence in Baltimore, New York](#),” Reuters, April 30, 2015.

LENDING IN BALTIMORE

In a city of approximately 622,000 people, where almost a quarter of those are living below the poverty line,⁷ investments in the city are few and far between. Dilapidated buildings and boarded up homes line the streets. Homeownership is a cornerstone of the American dream and is the most successful vehicle for moving families up from poverty and into the middle class—yet sadly, it has been marked by racial and economic inequality.⁸ Lack of access to home mortgage loans can result in unwanted segregation and a concentration of poverty-stricken families in neighborhoods that are an expensive strain on local services. When white Baltimore residents can buy homes and build wealth each month while black families are prevented from doing so we can expect a widening racial wealth gap.⁹ This segregation leads to social isolation; families of West Baltimore lack the same access to education, financial services, and other critical needs. For the youth of these areas, a lack of local role models, jobs, and cultural activities impedes their ability to access networks that promote personal and professional growth.¹⁰



Near the corner of W Fayette St. and N Carrollton Ave., West Baltimore. Photo: Robyn Dorsey



Fells Point neighborhood, near the corner of S Bond St. and Aliceanna St. Photo: Robyn Dorsey

Freddie Gray's neighborhood of Sandtown-Winchester (in West Baltimore) illustrates this problem. In an area that is 97 percent black, the perpetuation of poverty continues, with over half of households reporting incomes under \$25,000, double the unemployment rate of the rest

7 23.8 percent, per the [U.S. Census Bureau](#).

8 Thomas Shapiro, Tatjana Meschede, and Sam Osoro, "[The Roots of the Widening Racial Wealth Gap: Explaining the Black-White Economic Divide](#)," Institute on Assets and Social Policy Research and Policy Brief, 2013.

9 Vicki Been, Ingrid Ellen, and Josiah Madar, "[The High Cost of Segregation: Exploring Racial Disparities in High-Cost Lending](#)," *Fordham Urban Law Journal* 36.3 (2008): 371.

10 *Ibid*, p. 371.

of the city, and one of the highest incarceration rates in the state of Maryland.¹¹ This is despite the investment of over \$100 million a generation ago, an investment that was never capitalized on while support and reinvestment poured into the nearby Inner Harbor.¹² Instead, these neighborhoods would become targets for unscrupulous lenders selling predatory loans. Baltimore would later successfully sue over these practices but the damage was done, and West Baltimore would not share in the gradual recovery which has followed the housing crash.^{13,14}

These patterns of racially segregated neighborhoods can result in other problems, as well:

“The geographic concentration of racial minorities resulting from higher levels of segregation could make residents of these communities more vulnerable to...systematic, racially motivated avoidance (i.e. redlining).”¹⁵



W Fayette St. and N Carrollton Ave., West Baltimore. Photo: Robyn Dorsey



View of Johns Hopkins Hospital from the north, East Baltimore. Photo: Robyn Dorsey

11 Shane, “[Baltimore Riots](#).”

12 Paul Marx, “[Rouse’s failure in Sandtown-Winchester](#),” *The Baltimore Sun*, March 13, 2015.

13 “[Baltimore Settles Landmark Fair Lending Case Against Wells Fargo](#),” Relman, Dane, & Colfax PLLC, 2012.

14 Yian Q. Mui, “[Wells Fargo, Justice Department settle discrimination case for \\$175 million](#),” *The Washington Post*, July 12, 2012.

15 Been, Ellen, and Madar, “The High Cost of Segregation,” 372.

NCRC has used several common racial and socio-economic variables to analyze home lending for this report.¹⁶ These analyses reveal startling findings about the distribution of loans in Baltimore. **Home purchase lending, as a whole, is low in Baltimore City.** The only exceptions to this are in areas with notably smaller minority populations:¹⁷ Fells Point, Federal Hill, and neighborhoods around Johns Hopkins University.

Whites in Baltimore City are approved for home purchase loans at a much higher rate than those in other racial groups; white borrowers receive 210 percent of the lending that their population size suggests they should. This is in stark contrast with African Americans, who received just 37 percent of the loans that they should have given their majority position in the population in 2013. But home lending is often more about the neighborhood than the borrowers themselves, and in Baltimore we find that the composition of the neighborhood is critical to understanding where lending happens.



Biddle St. and N Chester St., East Baltimore. Photo: Robyn Dorsey

In our analysis of economic and racial factors in home mortgage lending in Baltimore City, the most significant factor in predicting the number of loans approved in a given neighborhood was the number of white residents living there. Income, levels of home ownership, and education were inconsistent or subsidiary factors in neighborhood lending under our statistical models.

¹⁶ For a full methodology see Appendix D.

¹⁷ Latinos represent too small of a percentage of residents to include in this analysis. However, anecdotal evidence is that they experience the same level of disinvestment as African American residents of Baltimore.

Race was consistently the most significant predictor of mortgage lending patterns in Baltimore City. The percentage of white residents of a neighborhood was significantly and positively correlated, while the percentage of black residents in a neighborhood was significantly and negatively correlated with the amount of loans approved in Baltimore between 2011 and 2013. In a regression analysis of demographic and socioeconomic factors including indicators of race, ethnicity,



Rear view of a row of houses in West Baltimore. Photo: Elvin Wylie

education and wealth, the percentage of white residents in a neighborhood was the most important factor in the prediction of lending volume, while percentage Asian and the median home value were significant, though less important, predictors in the model. This points to the preeminence of race as a factor in lending within Baltimore City, with additional factors relating to economic status compounding the relationship.

In the counties surrounding Baltimore City income and the percentage of owner-occupied houses are the best predictor of lending activity. The number of African American families in a neighborhood is not related to the amount of lending, with even majority African American neighborhoods in Howard County seeing a brisk pace of home purchases.



East Baltimore, north of Johns Hopkins Hospital. Photo: Robyn Dorsey

Low- to moderate-income applicants fare better in the counties, with 80 percent of them settling in middle- and

upper-income neighborhoods. They also get approved at a higher rate than in Baltimore City, experiencing approval rates equal to middle- and upper-income families in the City. African American families also see a dramatic difference in their experience in the counties versus the City, with **86 percent of African American homeowners in the city being located in low- or moderate-income neighborhoods. Meanwhile, 81 percent of African American homeowners in the counties settle in middle- and upper-income neighborhoods.**

Small business lending in Baltimore City does not show the same statistical relationship to the local population as home lending, yet the maps of this lending still appear to show fewer small business loans in predominantly African American Baltimore neighborhoods than in predominantly white neighborhoods. In the counties outside of Baltimore, this pattern is not visible.

The maps in Appendix A provide visualizations of our lending analysis in Baltimore. Through them the drastic differences in home purchase lending practices become apparent. They record a systematic disinvestment in majority African American neighborhoods, even as investment flows to tracts with fewer African Americans. This points to a pattern of neighborhood segregation within Baltimore's city limits, and activities by lenders which perpetuate segregation and disinvestment.¹⁸

18 See Home Purchase Loan Maps 1 and 2; See Appendix D for methodology.

DATA AND METHODS

All of the data used by NCRC is from public sources. A detailed methodology is located in Appendix D and we encourage NCRC members, local advocacy groups, and other groups to replicate this report in their home neighborhoods. NCRC assists members with free research and data analysis. Contact NCRC to learn more.

Unless otherwise noted the home mortgage lending data was downloaded from the Consumer Financial Protection Bureau (CFPB) Home Mortgage Disclosure Act (HMDA) website and includes only owner-occupied loans on single-family properties.¹⁹ In some cases NCRC has used both refinance and home purchase lending, but in the maps and regression analyses only home purchase lending is analyzed. The years covered by this analysis are 2011, 2012, and 2013 (2014 data was not available by the time of publication).

For the regression analysis, NCRC has compared lending activity with a variety of common racial and socio-economic variables, including income, owner-occupied units, median family income, education level, and neighborhood income. For more details please see a complete methodology in Appendix D.

For small business data, CRA small business lending data was downloaded from the Federal Financial Institutions Examination Council (FFIEC) website.²⁰ This report only addresses small business lending from 2013.

The data was collected via Excel 2013 using Power Pivot software to clean and process the data for analysis. The analysis was conducted using either SPSS, ArcGIS, or CRA Wiz software.

NCRC has not singled out any specific lender for this analysis, and the figures represent the cumulative lending activity of all lenders that reported data pursuant to HMDA in 2011-2013.²¹

NCRC has examined home purchase lending via mapping, descriptive statistics, and regression analysis. Each method has reinforced the findings herein, resulting in a very robust overall analysis of Baltimore lending activity.

Throughout this report the authors have made use of photographs. Several of these are from *Things Pictures Don't Tell Us: In Search of Baltimore* by Professor Elvin Wyly and are used with his permission.²² Additional photos are from Robin Dorsey, Program Manager at the Maryland Consumer Rights Coalition, and were used with her permission.

¹⁹ "HMDA: Explore the Data," Consumer Financial Protection Bureau, 2015.

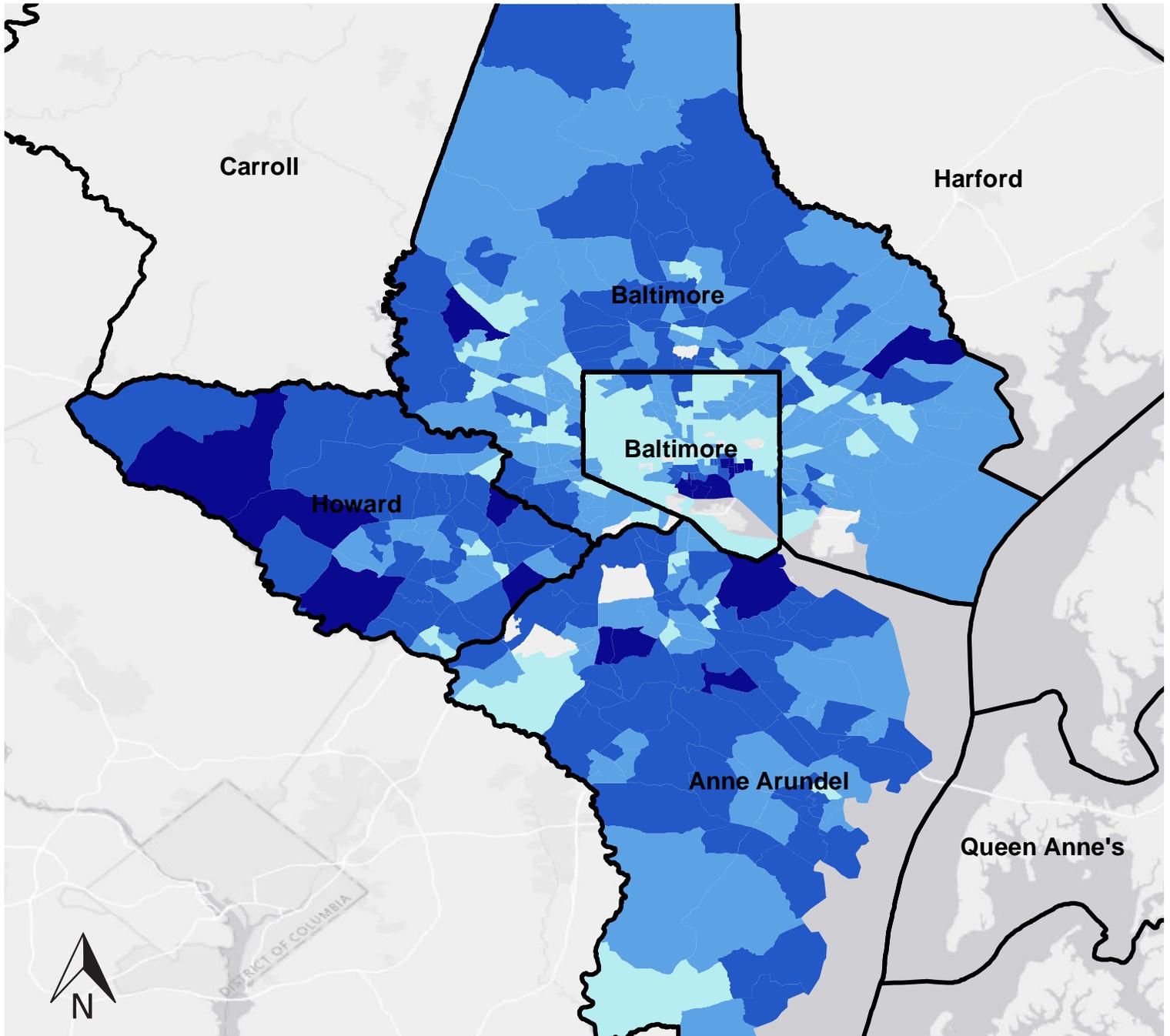
²⁰ "CRA Data Products," Federal Financial Institutions Examination Council, last modified August 11, 2015.

²¹ "Who Reports HMDA Data?" Federal Financial Institutions Examination Council, last modified June 29, 2015.

²² Elvin Wyly, "Things pictures don't tell us: In search of Baltimore," *City: Analysis of Urban Trends, Culture, Theory, Policy, Action* 14.5 (2010): 497-528.

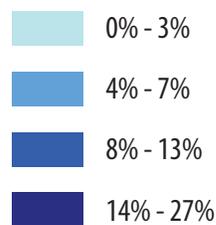
APPENDIX A: BALTIMORE CITY: A LENDING DESERT

Baltimore Region



Home Loans Per Occupied Household
Home Purchase Loans 2011-2013

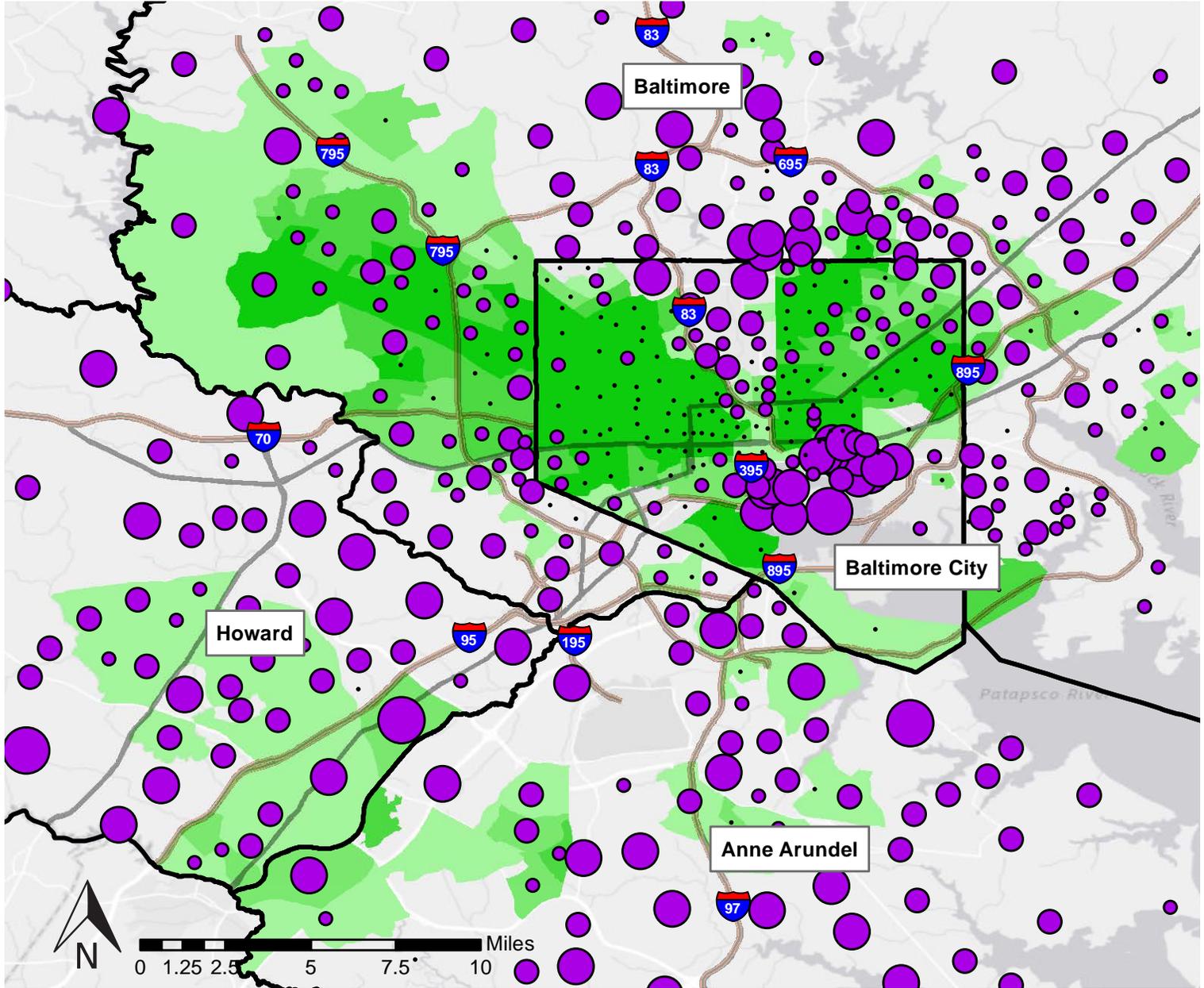
Home Purchase Loans
Per Occupied Unit



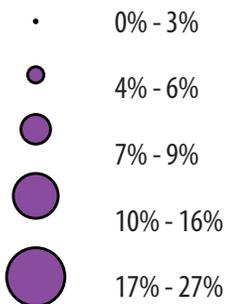
What this shows: This map illustrates the low levels of mortgage lending within Baltimore City, contrasted with the surrounding suburban counties. The communities clustered around the Inner Harbor and in the north shows high levels of lending, like the suburbs. This is in stark contrast with West and East Baltimore, which have much lower levels of lending activity.

APPENDIX A: BALTIMORE CITY: A LENDING DESERT

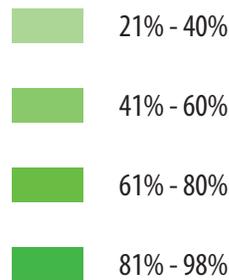
Home Purchase Lending and Race in the Baltimore Region



Home Purchase Activity 2011-2013



Black Percentage of Population

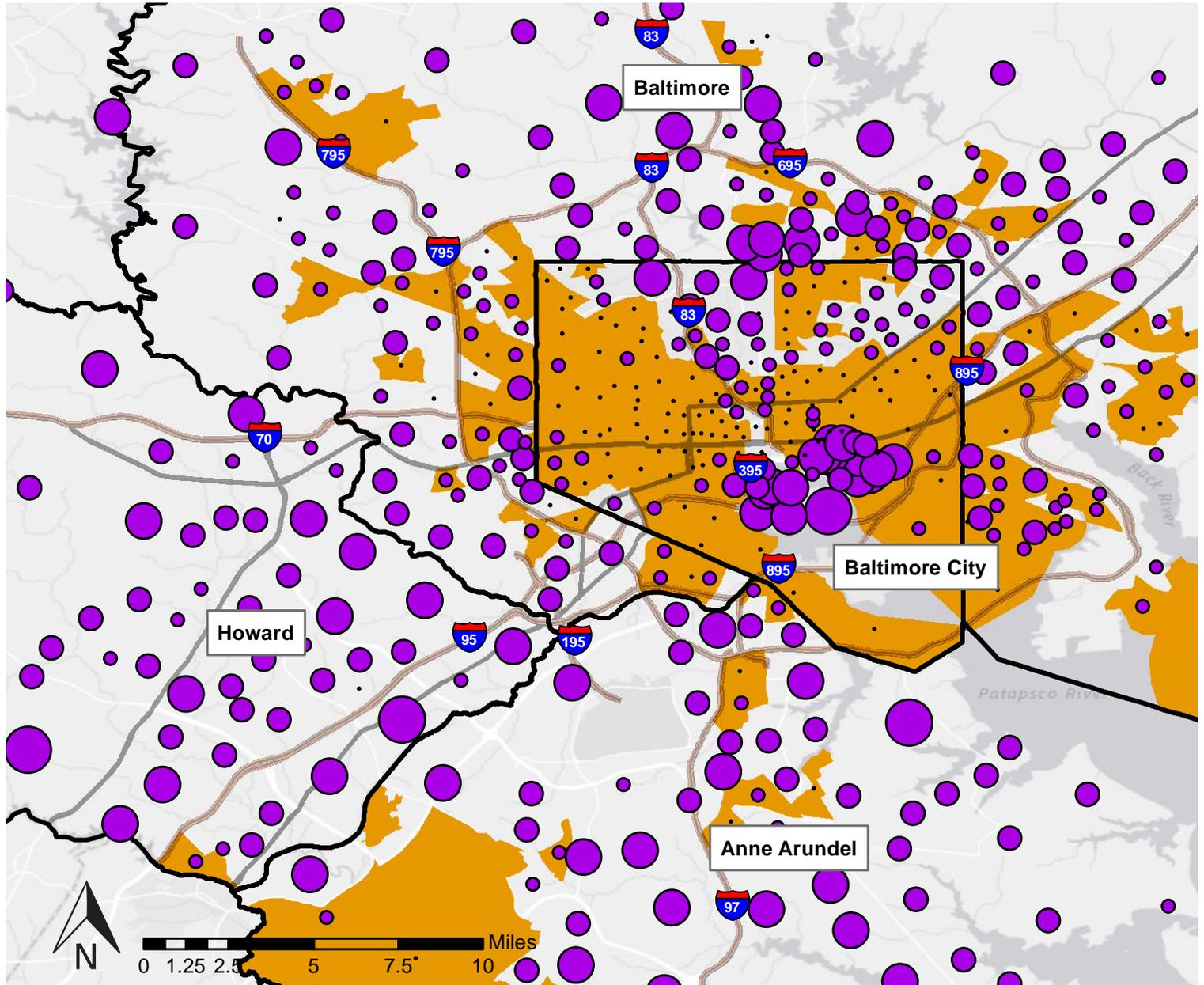


WHAT THIS SHOWS: This is a dramatic visualization of the differences in home mortgage lending between white and African American majority census tracts in Baltimore City. In the suburbs, home purchase lending for African American majority census tracts appears greater than in the city. This is possibly due to the impact of higher median family income in some suburban census tracts.

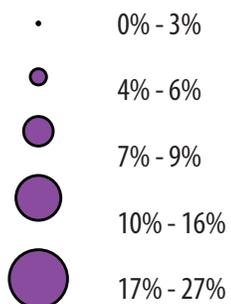
NOTE: Home purchase lending as a percentage of occupied housing units from 2011 to 2013 within that census tract. Race is the percentage of African American residents within that census tract.

APPENDIX A: BALTIMORE CITY: A LENDING DESERT

Home Purchase Lending and Income in the Baltimore Region



Home Purchase Activity 2011-2013



Low- to Moderate-Income (LMI) Tracts

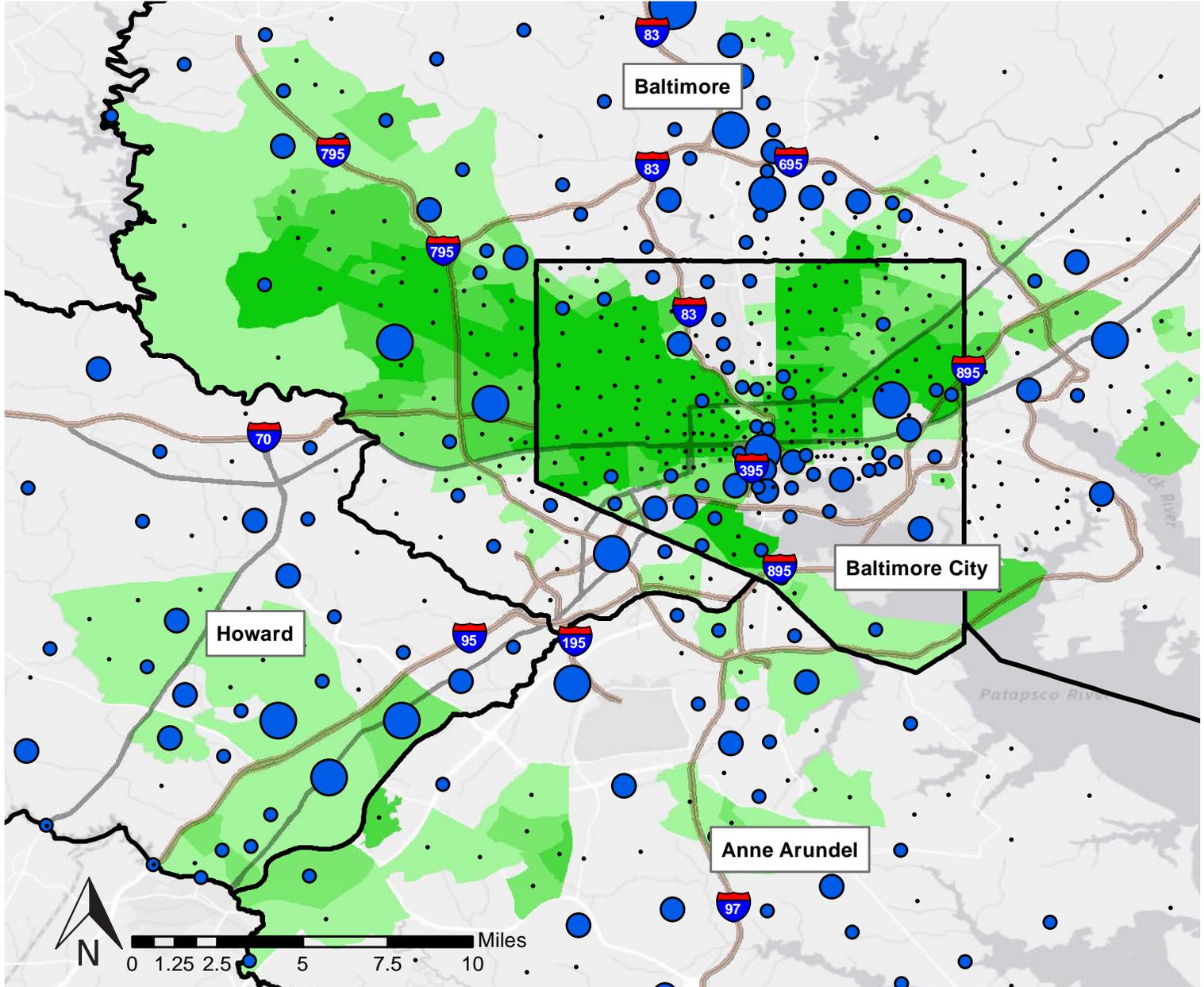


WHAT THIS SHOWS: Within Baltimore City a larger percentage of mortgage lending takes place in the wealthier neighborhoods north of John Hopkins and around the Inner Harbor. Mortgage lending in the low- and moderate-income (LMI) areas of East and West Baltimore is almost absent. This pattern is also apparent in the surrounding suburban counties, though not as visually clear.

NOTE: Home purchase lending as a percentage of occupied housing units from 2011 to 2013 within that census tract. LMI census tracts are defined as those in which the median family income is below 80 percent of the regional average.

APPENDIX A: BALTIMORE CITY: A LENDING DESERT

Small Business Lending and Race in the Baltimore Region



Small Business Lending in Each Census Tract 2013 Per Adult

- \$0-\$600
- \$600-\$1,800
- \$1,800-4,500
- \$4,500-11,500
- \$11,500-55,000

Black Percentage of Population

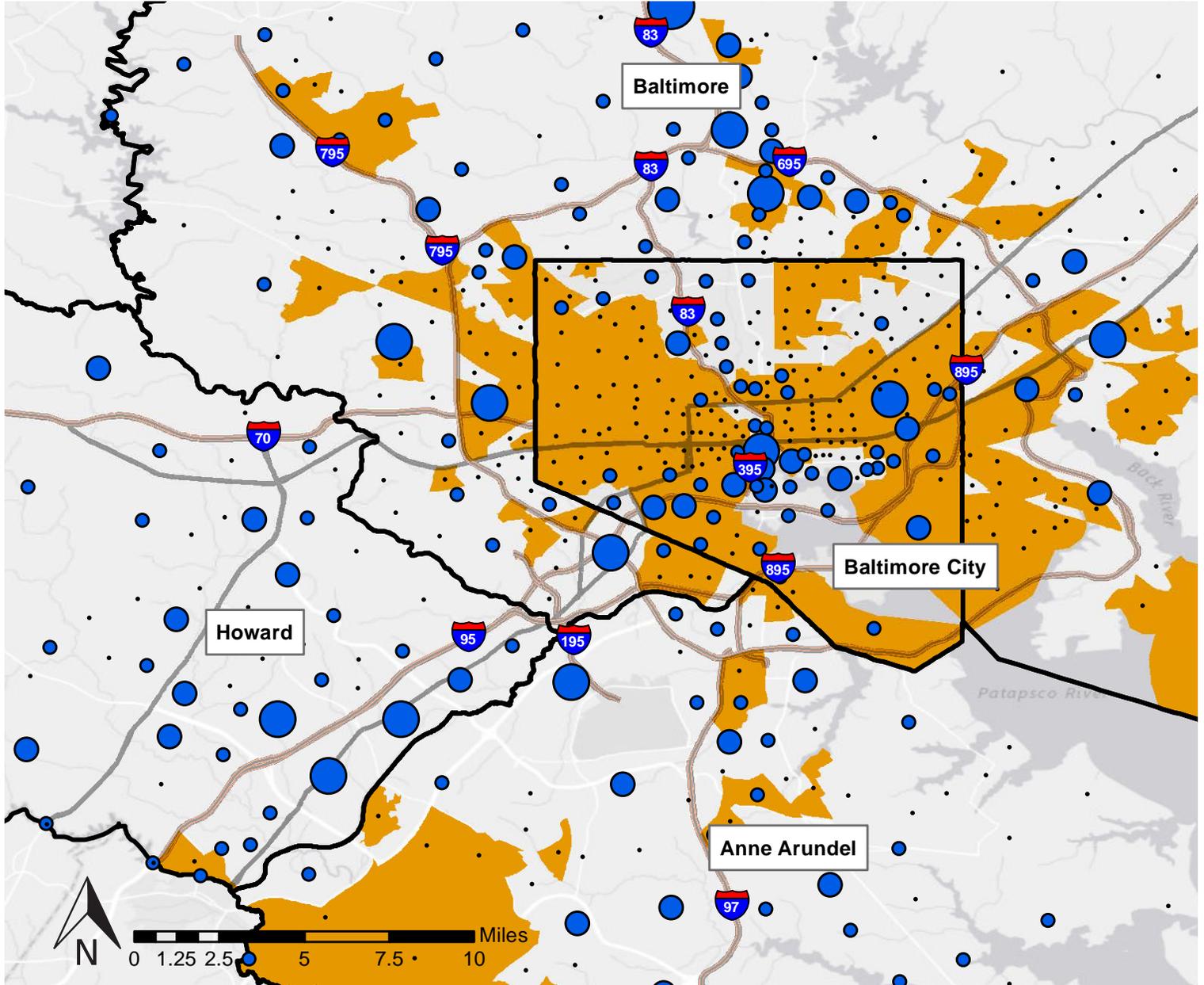
- 21% - 40%
- 41% - 60%
- 61% - 80%
- 81% - 98%

WHAT THIS SHOWS: Overall, small business investment is clustered in commercial areas along major transportation routes and nodes. African American majority neighborhoods in East and West Baltimore show low levels of investment. There is higher investment in the areas surrounding the Inner Harbor, and also in the northern portion and southern, nonresidential areas of Baltimore City. Small business investment outside the city is clustered in commercial areas along major transportation routes.

NOTE: Small business lending by the amount of investment per adult population in each census tract in 2013. Race is the percentage of African American residents per census tract.

APPENDIX A: BALTIMORE CITY: A LENDING DESERT

Small Business Lending and Income in the Baltimore Region



Small Business Lending in Each Census Tract 2013 Per Adult

- \$0-\$600
- \$600-\$1,800
- \$1,800-\$4,500
- \$4,500-\$11,500
- \$11,500-\$55,000

Low- to Moderate-Income (LMI) Tracts



WHAT IT SHOWS: Overall, small business investment is clustered in commercial areas along major transportation routes and nodes. In the city, investment is highest in the Inner Harbor area, but also in commercial areas to the south and east. In the suburbs, there appears to be a clearer pattern of disinvestment in low- to moderate-income (LMI) areas, though proximity to transportation routes seems to be a major factor.

NOTE: Small business lending by the amount of investment per adult population in each census tract in 2013. LMI census tracts are defined as those in which the median family income is below 80 percent of the regional average.

APPENDIX B: MORTGAGE LENDING ANALYSIS

The tables in this appendix are output from CRA Wiz compliance software. They cover home purchase lending made in 2013 only, unlike our maps and other analyses which look at 2011-2013 mortgage loans. This gives us a snapshot of the state of lending in 2013 in Baltimore City and compares it with the surrounding counties.

The disparity ratio refers to the difference between the lending a particular group receives in relationship their population size. For example, in Table 1, whites received 210 percent of the loans that their population size would indicate they should.

Race and Ethnicity	Count of Loans			Approval Rate	Disparity Ratio Loans/Population Size
	Population	Applications	Originations		
White	174,120	2,653	1,999	75%	210%
Hispanic	25,960	158	98	62%	69%
Black	392,938	1,304	797	61%	37%
Asian	14,397	144	94	65%	120%
Total	620,961	4,893	3,392	69%	100%
Geography	Baltimore City 2013				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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				

Race and Ethnicity	Count of Loans			Approval Rate	Disparity Ratio Loans/Population Size
	Population	Applications	Originations		
White	1,063,914	13,195	10,382	78.68%	224%
Hispanic	83,366	719	495	68.85%	72%
Black	337,882	2,733	1,849	67.65%	18%
Asian	99,120	2,185	1,531	70.07%	399%
Total	1,629,770	22,157	16,559	74.73%	100%
Geography	Baltimore County, Anne Arundel County, and Howard County 2013				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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				

APPENDIX B: MORTGAGE LENDING ANALYSIS

Tables 1 through 4 illustrate the extent to which black borrowers, especially in Baltimore City, receive far less lending than their population size suggests that they should be getting.

In Tables 3 and 4 these figures are presented as percentages, and Table 3 shows that given their majority status black borrowers received 40 percent less lending activity than they should have. While Table 4 shows a disparity in the county as well, it is far less, at just 10 percent.

TABLE 3: Overview by Percentage					
Race and Ethnicity	Count of Loans			Approval Rate	Percentage Point Differences
	Population	Applications	Originations		
White	28%	54%	59%	75%	31%
Hispanic	4%	3%	3%	62%	-1%
Black	63%	27%	23%	61%	-40%
Asian	2%	3%	3%	65%	0%
Total	100%	100%	100%	69%	0%
Geography	Baltimore City 2013				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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				

TABLE 4: Overview by Percentage					
Race and Ethnicity	Count of Loans			Approval Rate	Percentage Point Differences
	Population	Applications	Originations		
White	65%	60%	63%	79%	-3%
Hispanic	5%	3%	3%	69%	-2%
Black	21%	12%	11%	68%	-10%
Asian	6%	10%	9%	70%	3%
Total	100%	100%	100%	75%	0%
Geography	Baltimore County, Anne Arundel County, and Howard County 2013				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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				

APPENDIX B: MORTGAGE LENDING ANALYSIS

In Tables 6, 7, and 8 we see that lending to black residents in Baltimore City is limited to majority-minority census tracts, while black borrowers in the counties outside of Baltimore are far more likely to be in neighborhoods that have higher white populations. In the counties, black borrowers are also far more evenly distributed among tracts of varying income levels, with 20 percent of black borrowers in the counties getting their loans in upper-income tracts.

Percent of Applications Across Different Census Tracts	All Households	White	Hispanic	Black	Asian
All Tracts	4,893	2,653	158	1,304	144
Minority Level					
<10% Minority	5%	7%	5%	0%	5%
10-19% Minority	25%	37%	21%	2%	24%
20-49% Minority	25%	32%	24%	8%	38%
50-79% Minority	20%	17%	21%	26%	22%
80-100% Minority	25%	7%	11%	64%	12%
Tract Income Level					
Low - < 50% MSA/MD Median	16%	12%	22%	24%	17%
Moderate - 50-79.99% MSA/MD Median	37%	25%	44%	63%	33%
Middle - 80-119.99% MSA/MD Median	24%	31%	14%	11%	24%
Upper - 120% or More MSA/MD Median	22%	32%	20%	2%	26%
Geography	Baltimore City 2013				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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				

Percent of Applications Across Different Census Tracts	All Households	White	Hispanic	Black	Asian
All Tracts	27,050	15,848	877	4,037	2,329
Minority Level					
<10% Minority	10%	14%	6%	1%	2%
10-19% Minority	28%	36%	22%	9%	14%
20-49% Minority	39%	38%	40%	27%	59%
50-79% Minority	15%	11%	23%	27%	22%
80-100% Minority	8%	2%	6%	36%	3%
Tract Income Level					
Low - < 50% MSA/MD Median	4%	5%	5%	9%	2%
Moderate - 50-79.99% MSA/MD Median	14%	11%	18%	32%	7%
Middle - 80-119.99% MSA/MD Median	37%	38%	41%	38%	33%
Upper - 120% or More MSA/MD Median	46%	44%	36%	20%	58%
Geography	Baltimore and Baltimore County, Anne Arundel County, and Howard County 2013				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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				

Percent of Applications Across Different Census Tracts	All Households	White	Hispanic	Black	Asian
All Tracts	22,157	13,195	719	2,733	2,185
Minority Level					
<10% Minority	11%	15%	6%	2%	2%
10-19% Minority	29%	36%	22%	12%	13%
20-49% Minority	42%	39%	44%	36%	60%
50-79% Minority	14%	10%	23%	28%	22%
80-100% Minority	4%	1%	5%	22%	2%
Tract Income Level					
Low - < 50% MSA/MD Median	1%	1%	2%	3%	1%
Moderate - 50-79.99% MSA/MD Median	8%	7%	12%	17%	5%
Middle - 80-119.99% MSA/MD Median	40%	39%	47%	51%	33%
Upper - 120% or More MSA/MD Median	51%	52%	39%	29%	60%
Geography	Baltimore County, Anne Arundel County, and Howard County 2013				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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				

APPENDIX B: MORTGAGE LENDING ANALYSIS

Tables 9 and 10 reveal that over 80 percent of loans with a black borrower in Baltimore City were in low- to moderate-income census tracts, while in the county over 80 percent of loans to black borrowers were in middle- and upper-income census tracts. Once again, this aligns with the literature that suggests the racial composition of the neighborhood has more of an impact on lending than the race of the borrower.

Percent of Applicants Across Different Census Tracts	All Households	White	Hispanic	Black	Asian
All Tracts	19,951	12,381	593	2,646	1,625
Minority Level					
< 10% Minority	10%	13%	6%	1%	2%
10-19% Minority	30%	37%	24%	9%	14%
20-49% Minority	39%	38%	40%	28%	59%
50-79% Minority	15%	11%	23%	28%	22%
80-100% Minority	7%	2%	7%	34%	3%
Tract Income Level					
Low - < 50% MSA/MD Median	3%	2%	4%	8%	2%
Moderate - 50-79.99% MSA/MD Median	13%	10%	18%	31%	7%
Middle - 80-119.99% MSA/MD Median	37%	39%	39%	39%	32%
Upper - 120% or More MSA/MD Median	47%	49%	39%	22%	59%
Geography	Baltimore and Baltimore County, Anne Arundel County, and Howard County 2013				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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				

Percent of Applicants Across Different Census Tracts	All Households	White	Hispanic	Black	Asian
All Tracts	3,392	1,999	98	797	94
Minority Level					
< 10% Minority	6%	8%	5%	1%	4%
10-19% Minority	27%	37%	24%	2%	27%
20-49% Minority	26%	32%	19%	9%	36%
50-79% Minority	20%	17%	34%	26%	22%
80-100% Minority	21%	6%	17%	62%	11%
Tract Income Level					
Low - < 50% MSA/MD Median	14%	11%	20%	21%	17%
Moderate - 50-79.99% MSA/MD Median	36%	24%	43%	65%	31%
Middle - 80-119.99% MSA/MD Median	26%	32%	15%	12%	28%
Upper - 120% or More MSA/MD Median	24%	32%	21%	2%	24%
Geography	Baltimore City 2013				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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				

Percent of Applicants Across Different Census Tracts	All Households	White	Hispanic	Black	Asian
All Tracts	16,559	10,382	495	1,849	1,531
Minority Level					
< 10% Minority	11%	14%	6%	2%	2%
10-19% Minority	30%	37%	24%	12%	13%
20-49% Minority	42%	39%	44%	37%	60%
50-79% Minority	14%	9%	21%	28%	22%
80-100% Minority	4%	1%	4%	22%	2%
Tract Income Level					
Low - < 50% MSA/MD Median	1%	1%	1%	3%	1%
Moderate - 50-79.99% MSA/MD Median	8%	7%	13%	16%	5%
Middle - 80-119.99% MSA/MD Median	40%	40%	44%	50%	33%
Upper - 120% or More MSA/MD Median	51%	52%	42%	31%	61%
Geography	Baltimore County, Anne Arundel County, and Howard County 2013				
Lender	All HMDA				
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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				

APPENDIX B: MORTGAGE LENDING ANALYSIS

Tables 12 and 13 reveal that in Baltimore City, middle- and upper-income homebuyers have similar approval rates to low- to moderate-income buyers in the counties outside of Baltimore. This is indicative of the reduced importance that income plays in the city in favor of the racial composition of the area.

Percent of Applicants Across Different Census Tracts	LMI			MUI		
	As a percent of all		Approval Rates	As a percent of all		Approval Rates
	Applications	Originations		Applications	Originations	
All Tracts	35%	33%	69%	65%	67%	75%
Minority Level						
< 10% Minority	5%	6%	70%	12%	12%	76%
10-19% Minority	23%	25%	74%	31%	32%	77%
20-49% Minority	35%	36%	71%	41%	40%	77%
50-79% Minority	20%	19%	68%	13%	13%	75%
80-100% Minority	16%	14%	62%	3%	3%	71%
Tract Income Level						
Low - <50% MSA/MD Median	8%	6%	62%	2%	2%	67%
Moderate - 50-79.99% MSA/MD Median	27%	26%	68%	6%	6%	70%
Middle - 80-119.99% MSA/MD Median	44%	46%	73%	33%	33%	78%
Upper - 120% or More MSA/MD Median	21%	21%	70%	59%	59%	77%
Geography	Baltimore and Baltimore County, Anne Arundel County, and Howard County 2013					
Lender	All HMDA					
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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					

Percent of Applicants Across Different Census Tracts	LMI			MUI		
	As a percent of all		Approval Rates	As a percent of all		Approval Rates
	Applications	Originations		Applications	Originations	
All Tracts	53%	50%	65%	47%	50%	75%
Minority Level						
< 10% Minority	2%	2%	67%	9%	10%	82%
10-19% Minority	14%	16%	72%	38%	39%	77%
20-49% Minority	21%	22%	69%	29%	29%	76%
50-79% Minority	26%	27%	68%	14%	13%	69%
80-100% Minority	37%	34%	59%	10%	9%	64%
Tract Income Level						
Low - <50% MSA/MD Median	21%	19%	59%	11%	9%	65%
Moderate - 50-79.99% MSA/MD Median	50%	50%	65%	23%	22%	70%
Middle - 80-119.99% MSA/MD Median	20%	22%	72%	28%	30%	80%
Upper - 120% or More MSA/MD Median	9%	9%	67%	37%	38%	76%
Geography	Baltimore City 2013					
Lender	All HMDA					
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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					

Percent of Applicants Across Different Census Tracts	LMI			MUI		
	As a percent of all		Approval Rates	As a percent of all		Approval Rates
	Applications	Originations		Applications	Originations	
All Tracts	31%	30%	73%	69%	70%	76%
Minority Level						
< 10% Minority	7%	7%	73%	13%	13%	77%
10-19% Minority	27%	28%	76%	30%	31%	78%
20-49% Minority	40%	41%	74%	42%	42%	76%
50-79% Minority	18%	17%	68%	13%	13%	74%
80-100% Minority	9%	8%	65%	2%	2%	68%
Tract Income Level						
Low - <50% MSA/MD Median	2%	2%	65%	0%	0%	69%
Moderate - 50-79.99% MSA/MD Median	18%	18%	71%	4%	4%	71%
Middle - 80-119.99% MSA/MD Median	54%	54%	73%	34%	34%	76%
Upper - 120% or More MSA/MD Median	26%	26%	72%	62%	62%	77%
Geography	Baltimore County, Anne Arundel County, and Howard County 2013					
Lender	All HMDA					
Filters	Property Type is One to Four-Family and (Purpose is Home Purchase) 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					

APPENDIX C: BIVARIATE CORRELATION AND REGRESSION ANALYSIS

BALTIMORE CITY STATISTICS

Table 14 represents the descriptive statistics for Baltimore City. The deep segregation of the city is indicated by some census tracts having as few as 12 white residents, while other areas have as few as 45 black residents. While high school graduations rates in the city approach 80 percent, some neighborhoods have less than a 50 percent graduation rate.

DESCRIPTIVE STATISTICS

	N	Range	Minimum	Maximum	Mean	Std. Deviation
TotalAdult	199	5583	554	6137	2562.86	1113.975
TotalPop	199	5794	778	6572	3120.30	1309.146
Hispanic	199	1216	4	1220	130.43	203.890
White	199	4953	12	4965	874.89	1039.319
Black	199	6284	45	6329	1974.56	1419.790
Asian	199	1699	0	1699	72.35	159.195
Families	199	1676	0	1676	673.54	329.665
OccUnits	199	3574	0	3574	1255.74	581.873
OwnerOcc	199	1950	0	1950	598.78	382.570
TotalUnits	199	4143	0	4143	1490.81	621.352
VacUnits	199	865	0	865	235.07	147.256
FamilySize	199	3.74	.00	3.74	3.11	.38
HSGrad	199	.51	.49	1.00	.79	.11
MedFamInc	199	186094	0	186094	55065.72	32894.800
Loans_Unit	198	.34	.00	.34	.0693	.07108
SB_Loans	199	715162.45	.00	715162.45	50163.0495	89906.77147
Valid N (listwise)	198					

Table 14: Descriptive statistics for Baltimore City with socioeconomic data from 2013 5-year ACS and 2011-2013 HMDA lending data

APPENDIX C: BIVARIATE CORRELATION AND REGRESSION ANALYSIS

Bivariate correlations indicate significant correlations for mortgage loans per housing unit and all of the race, ethnicity, and socioeconomic variables used in the study. The highest correlation coefficient is for mortgage loans per housing unit and percent white residents in the Baltimore City census tracts.

	White	Black	Asian	Hispanic	Female head of household	Home owner occupancy	Unemployment	Median family income	Poverty	Year home built	Home value
Mortgages per unit	.711**	-.674**	.151*	.229**	-.569**	.453**	-.522**	.661**	-.436**	.074	.610**
	.000	.000	.033	.001	.000	.000	.000	.000	.000	.303	.000
	198	198	198	198	198	198	198	198	198	198	198

Table 15: Bivariate correlations. All variables standardized to their z-scores prior to calculation.

APPENDIX C: BIVARIATE CORRELATION AND REGRESSION ANALYSIS

Scatterplots of home mortgage lending by race. Note the significant, positive linear relationship between neighborhoods with higher percentages of white residents and the amount of mortgage lending ($r^2 = .519$). The trend reverses for neighborhoods with higher percentages of white neighborhoods, where home mortgage lending is negatively associated with higher percentages of black residents ($r^2 = .461$).

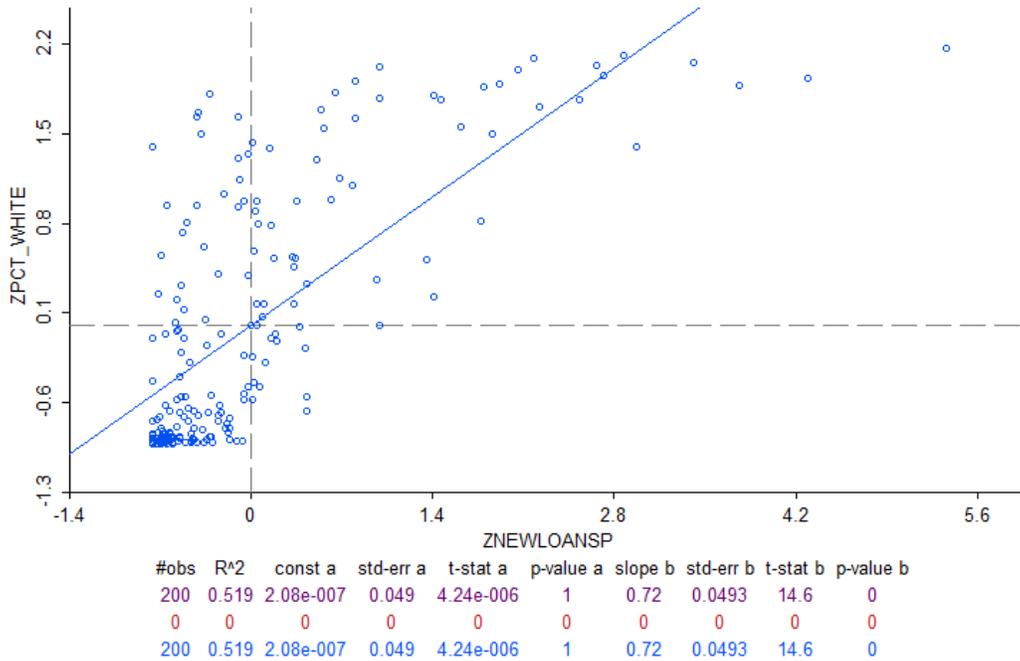


Figure 1: Graphic representation of white Baltimore City mortgage lending

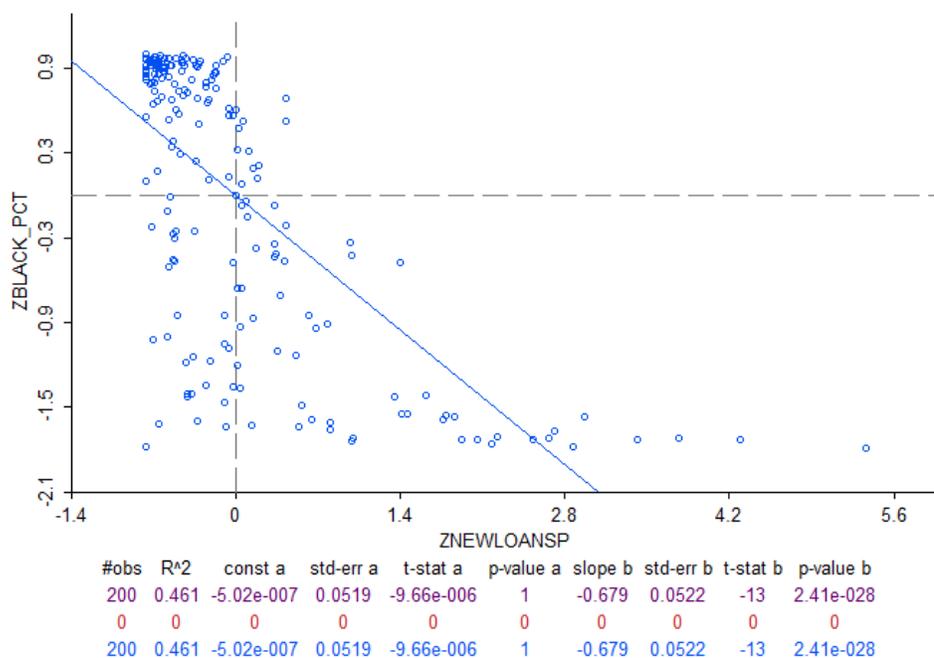


Figure 2: Graphic representation of black Baltimore City mortgage lending

APPENDIX C: BIVARIATE CORRELATION AND REGRESSION ANALYSIS

A regression model was constructed considering the variables for race (percentage white, percentage Asian, and percentage black); ethnicity (percentage Hispanic); median family income, median home value, homeowner occupancy, education (percentage high school graduates); and finally female head of household. Of these variables the most significant predictor of home mortgage lending in Baltimore City was race: in this case a higher percentage of whites had a significant relationship with the level of home mortgage lending. This had a robust adjusted R^2 value of .493. When the percentage of Asian residents in a neighborhood are added, the adjusted R^2 value increases to .531. Finally, if median home value of the neighborhood is added, the adjusted R^2 value increases to .568. Inclusion of additional variables in the model impacts the goodness-of-fit only slightly, so further socioeconomic variables should be excluded to produce a parsimonious model.

MODEL SUMMARY¹

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.704a	.496	.493	.71200518
2	.732b	.536	.531	.68463133
3	.758c	.575	.568	.65702413
4	.764d	.584	.575	.65185758
5	.772e	.596	.586	.64345702

- a. Predictors: (Constant), zwhite
- b. Predictors: (Constant), zwhite, zasian
- c. Predictors: (Constant), zwhite, zasian, zvalue_hom
- d. Predictors: (Constant), zwhite, zasian, zvalue_hom, zfemale_he
- e. Predictors: (Constant), zwhite, zasian, zvalue_hom, zfemale_he, zyear_home
- f. Dependent Variable: zmtg_pop2

APPENDIX C: BIVARIATE CORRELATION AND REGRESSION ANALYSIS

BALTIMORE SUBURBAN STATISTICS

DESCRIPTIVE STATISTICS

	N	Range	Minimum	Maximum	Mean	Std. Deviation
TotalAdult	390	8786	732	9518	3596.31	1409.748
TotalPop	390	10364	773	11137	4441.23	1770.313
Hispanic	390	2535	17	2552	228.18	237.673
White	390	8157	112	8269	2905.40	1549.669
Black	390	5485	7	5492	915.45	1093.954
Asian	390	2706	5	2711	268.54	322.822
Families	390	2645	0	2645	1148.47	491.205
OccUnits	390	5679	0	5679	1683.74	720.422
OwnerOcc	390	2954	0	2954	1194.48	575.431
TotalUnits	390	5898	0	5898	1783.15	761.187
VacUnits	390	505	0	505	99.41	70.332
FamilySize	390	3.79	.00	3.79	3.0777	.24641
HSGrad	390	.40	.60	1.00	.91	.07
MedFamInc	390	215098	0	215098	97414.20	34834.591
loans_Unit	389	.2726	.0000	.2726	.062868	.0346318
SBLoans	390	55010.8108	1.4843	55012.2951	1028.303486	2997.4513722
Valid N (listwise)	389					

APPENDIX C: BIVARIATE CORRELATION AND REGRESSION ANALYSIS

Bivariate correlations indicate significant correlations for mortgage loans per housing unit and all of the race, ethnicity, and socioeconomic variables used in the study. In the Baltimore suburbs the highest correlation coefficient is for median family income and owner occupancy. (MedFamInc).

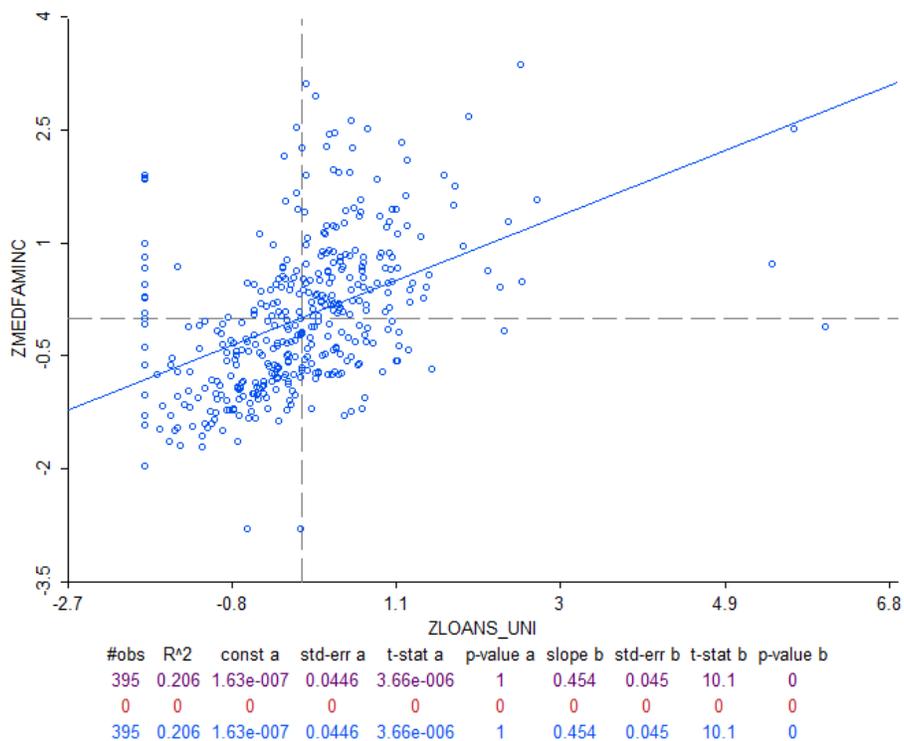
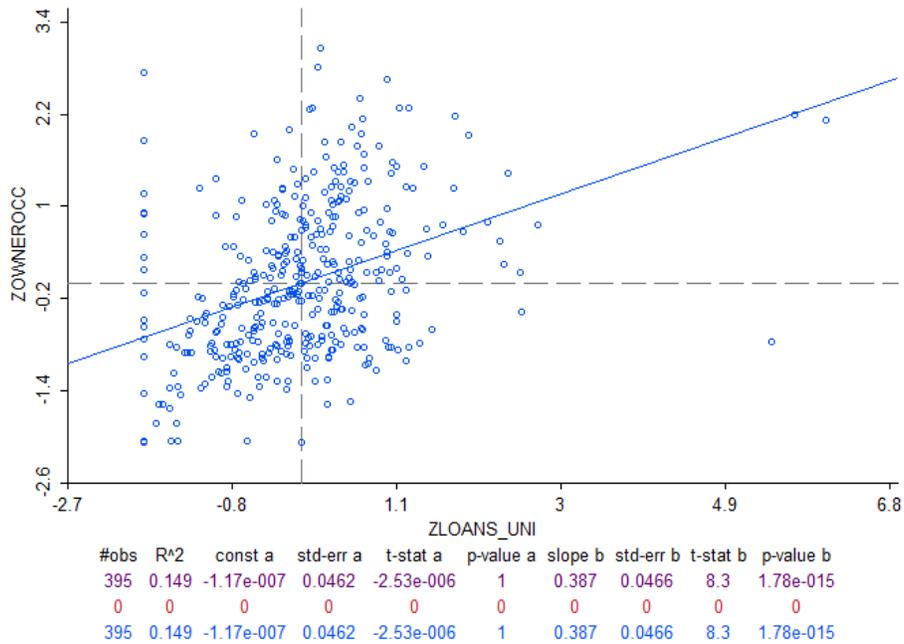
CORRELATIONS

	Zscore (loans_Unit)	Zscore (SBLoans)	Zscore (White_Pct)	Zscore (Black_Pct)	Zscore (Hisp_Pct)	Zscore (OwnerOcc)	Zscore (HSGrad)	Zscore (MedFamInc)
Zscore (loans_Unit)	1	.092	.319**	-.326**	-.261**	.388**	.241**	.458**
Zscore (SBLoans)	.069	1	.065	-.075	-.030	-.074	.047	.090
	389	389	389	389	389	389	389	389
	.069	.199	.137	.561	.144	.351	.075	
	389	390	390	390	390	390	390	390

** . Correlation is significant at the 0.01 level (2-tailed).

APPENDIX C: BIVARIATE CORRELATION AND REGRESSION ANALYSIS

Scatterplot and slope of the line for the relationship of income, owner-occupancy and mortgage lending in the Baltimore suburbs. The r^2 for the linear relationship between loans and greater owner occupancy levels is .149, while it is .206 for loans and greater median family income.



APPENDIX C: BIVARIATE CORRELATION AND REGRESSION ANALYSIS

The correlations indicate that more complex associations between lending and socioeconomic and race-related variables exist in the suburban areas. A regression model was run to assess these associations.

MODEL SUMMARY^d

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.458a	.210	.208	.89011503	.210	102.711	1	387	.000
2	.509b	.259	.255	.86292294	.049	25.774	1	386	.000
3	.529c	.280	.274	.85189792	.021	11.056	1	385	.001

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

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

c. Predictors: (Constant), Zscore(MedFamInc), Zscore(OwnerOcc), Zscore(White_Pct)

d. Dependent Variable: Zscore(loans_Unit)

Here we find that the single most important predictor of home mortgage lending in the suburbs is income (MedFamInc), which has an adjusted $R^2 = .208$. If homeowner occupancy levels are added to the model, then the adjusted R^2 increases to .255. Finally, if the percentage of whites in each tract is added, there is a small gain in the model's goodness of fit to adjusted $R^2 = .274$. This model indicates the explanatory power of socioeconomic factors in suburban Baltimore. One note of caution: the racial and socioeconomic variables have high indicators of collinearity (Tolerance and VIF) under Models 2 and 3. Consequently, a parsimonious, or lower complexity model should be adopted in favored of the models with greater numbers of variables. In this case median family income has the most predictive power.

APPENDIX D: METHODOLOGY

The data used in the analysis of Baltimore and surrounding counties was downloaded from U.S. government sources, which include: the 2010 U.S. Decennial Census, the 2013 5-year American Community Survey, and the Consumer Financial Protection Bureau (CFPB) Home Mortgage Disclosure Act (HMDA) 2011-2013 data. The HMDA data was downloaded directly using the CRA Wiz application from Wolters Kluwer Financial Services for the various modes of analysis. Small business data was downloaded from the Federal Financial Institutions Examination Council (FFIEC) Community Reinvestment Act (CRA) website.²³ First, overall mortgage lending trends in the entire region were compared, then just for the urban portion comprising of Baltimore City, and finally for the surrounding suburban areas of Baltimore County, Howard County, and Anne Arundel County, Maryland. This allowed us to contrast and compare different markets in the entire region. The same was done for the small business data.

After downloading the data, it was structured in a set of charts indicative of socioeconomic and demographic patterns relating to the income, race and ethnicity of borrowers and also aggregated data at the census tract level. This is available for both mortgage loan originations and approvals. The data was then geographically projected using ArcGIS 10.2 for spatial analysis and map preparation. The variables used in this portion, or level one of the analysis, are shown in Table 1.

Variable Type	Variable Name – by 2010 census tract	Source
Dependent Variables	Mortgage Loan Applications	CFPB 2011-2013 CRA data
	Mortgage Loan Originations	CFPB 2011-2013 CRA data
	Small Business Loan Amount	FFIEC 2013 CRA data
Demographic Variables	Non-Hispanic White Percentage	2010 Decennial U.S. Census
	Non-Hispanic Black Percentage	2010 Decennial U.S. Census
	Asian Percentage	2010 Decennial U.S. Census
	Hispanic percentage	2010 Decennial U.S. Census
Socioeconomic Variables	Owner-Occupied Units Percentage	2013 5-year Census ACS
	Median Family Income	2013 5-year Census ACS
	High School Graduates Percentage	2013 5-year Census ACS
	Female Head of Household Percentage	2013 5-year Census ACS
	Unemployment Percentage	2013 5-year Census ACS
	Poverty Percentage	2013 5-year Census ACS
	Median Home Value	2013 5-year Census ACS
	Median Year Home Built	2013 5-year Census ACS

Table 2 Variables used in first level of analysis

²³ "Community Reinvestment Act," Federal Financial Institutions Examination Council, last modified September 17, 2015.

APPENDIX D: METHODOLOGY

A series of descriptive statistics and maps were developed at the first level of analysis. For the second level of analysis we examined the data for associations between variables for bivariate correlations and for modelling using ordinary least squares regression. Two dependent variables were chosen to model the relationship: one for the level of mortgage loans per housing unit in each census tract, and the other for the total dollar amount of small business lending. The independent variables were drawn directly from the demographic and socioeconomic variables listed in Table 1.

Scatter plots for each of the dependent and independent variables were run and examined to determine whether nonlinear relationships were evident. All of the relationships appeared to be linear, consequently, bivariate correlations were analyzed using Pearson's correlation coefficient to assess their significance, strength and direction. Strength of linear relationships were assessed using the r^2 value. Next modeling was completed using an ordinary least squares regression analysis. A stepwise method was selected to produce models for Baltimore City and the suburban counties surrounding Baltimore. The results are reported above. One note of caution, the racial and socioeconomic variables have high indications of multicollinearity (Tolerance and VIF). Consequently, a parsimonious, or lower complexity model should be adopted in favored of the models with greater numbers of variables.



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