Statewide Home Mortgage Lending Patterns in Connecticut, 2010 to 2014

A Report to the Connecticut Fair Housing Center

November 2, 2018
I. Executive Summary

There are clear racial disparities in home mortgage lending in Connecticut. Data for the period from 2010 to 2014 show that blacks and Hispanics are denied loans more often than whites, even when controlling for income. In fact, very high income blacks are more likely to be denied home purchase and refinance loans than low income whites. Mortgage lending activity is also depressed in racially diverse, and majority non-white neighborhoods. Regardless of race and income, applicants are less likely to obtain loans than in predominately white areas. This is true even for upper income white applicants.

When applying for a home purchase loan, black borrowers are twice as likely to obtain government-backed loans as whites, a disparity that does not disappear when controlling for income. Lower and middle income Hispanics also are more likely to receive these loans than whites. This is important because government-backed loans are typically more costly than conventional-type loans. In addition, the percentage of government-backed home purchase loans that are subprime has skyrocketed from 1.8% in 2012 to 24.1% in 2014. As a result, black and Hispanic borrowers are more likely than whites to be saddled with a higher cost home purchase loan, regardless of income.

The data also show that if income alone determined the distribution of loans, racially diverse and majority non-white census tracts in the state would receive significantly more home purchase loans and would have a greater share of conventional loans than they actually do. These areas also have very large shortfalls of refinance loans. For instance, tracts with 75% or more minority would have two and one-half times the number of refinance loans than actually received, if homeownership and income levels were the basis for making loans.

While these lending disparities are common across metro areas in the state, some stand out, with larger denial disparities and loan shortfalls to majority non-white census tracts. A notable example is Hartford with the largest number and share of conventional home purchase loan shortfalls.

As a whole, the statewide results suggest that there are large lending disparities in Connecticut by race and income and that racial minorities in the state, particularly blacks and Hispanics, would have received substantially more mortgages and less costly loans if they had been treated more fairly in the mortgage market. The fact that diverse and majority non-white census tracts are underserved given their homeowner rates and income distribution implies that financial institutions may be failing their responsibilities under the Community Reinvestment Act.
II. Methods Summary

The work uses five years of lending data (2010-2014) from the Home Mortgage Disclosure (HMDA) Act. Five years of data were used in order to generate a large enough number of records to reliably report on lending patterns at the census tract level and to report on mortgage outcomes for racial groups by race and income. The five-year span also enables analysis of trends over the time period.

The analysis uses data for more than 650,000 applications for owner occupied properties with 1-4 family homes. Applications are limited to first lien mortgages not purchased by other institutions and exclude 641 records that had no census tract data. Applications for conventional home purchase, government-backed home purchase, refinance and home improvement loans are included.

Conventional and government-backed (including FHA and VA) loans are reported separately because of differences between the two loan products and because government-backed home loans make up a significant share of the overall home purchase market.

Race information is missing for 12.3% of the relevant records. These records were not reported for result totals on applicant races, but were included in other parts of the analysis such as mapping of total census tract denial rates. In addition, 5.8% of the relevant records were missing applicant income information. These records were not included in calculations that involved income.

When breaking down results by race, where possible we also consider the income level of applicants. We use HUD median Family income reported at the regional (metro and micro area) level in HMDA to calculate income groups. We categorize the data into six income categories: Very Low (RMI<50%), Low (RMI 50 to 79%), Middle (RMI 80 to 119%), Upper Middle (RMI 120 to 149%), High (RMI 150 to 199%) and Very High (RMI 200% or more). We make a separate set of cutoffs using the statewide median family income (which differs for each year).

To estimate how many loans would have been made to census tracts across Connecticut, if they were based on the distribution of homeowner incomes, we grouped the income of borrowers in the HMDA data by the same categories used by the U.S. Census Bureau’s American Community Survey.

For a more detailed description of the methods used in this study see the appendix in section IV of the report.

---

1 Loans purchased by institutions include loan sales between institutions or between brokers, investors and institutions. These transactions do not include the initial loan decisions determining whether or not applicants receive mortgage loans, because the purchases are made between lending institutions and not between lenders and borrowers. As a result, HMDA can contain a record for the origination of a loan, and a second record for an institution purchasing the same loan from another institution. Currently, however, there is no way to match such records to establish the chain of financial institution ownership over mortgage loans.
III. Statewide Lending Results

The report considers lending disparities by race and neighborhoods (census tracts) across the state. Racial disparities are found at both the individual applicant and borrower levels and across geographies in Connecticut. First we compare the racial composition of applicants with racial populations across the state, and report on these patterns across locations in the state, as well as how likely applicants are denied or turned down loans by lenders. We also look into annual loan volumes and denial rates within the period, noting changing lending patterns over time.

The report also highlights differences in these lending patterns across census tracts in the state, showing differences between them according to their racial minority compositions. Next, considered is whether or not racial minorities are more likely to obtain high cost loans than whites, in both the government-backed and subprime lending markets, with results reported for borrowers and census tract racial compositions. Last, we estimate how different loan volumes would be if lenders based making loans only on the homeownership and income distribution across the state.

1. Loan Applications by Type and Race of Applicant

One way to detect disparities in the home mortgage lending market is to compare the racial distribution of households with racial distribution of mortgage applicants and borrowers. The following charts show these distributions for all households, owner-specific households, loan applications, and loan originations (or loans that are actually completed). The charts show that black and Hispanic households are underrepresented in the markets for conventional home purchase loans, refinance loans and home improvement loans given their shares of all households and owner households in the state. Both groups are over-represented in the government-backed loan market. The results for Asian households are mixed, depending on the type of loan, while white households are over-represented in the conventional home purchase, refinance and improvement markets, and are under-represented in the government-backed home purchase market.

Table 1 shows the number of applications by loan type and by the race of the applicant. Conventional mortgages, make up about two-thirds of the home purchase application pool (n = 113,142), compared to government-backed loans (n = 61,991). White applicants are over-represented in the market for conventional home purchase loans (85.3%) compared to the distribution of total households in the state – 75.1% of all households had a white head of

---

2 We report on total households to show the full universe of households by race and owner specific households by race as a measure of households more likely to seek a mortgage. While all households may potentially seek out a home purchase mortgage, including some renters entering into homeownership, owner households are the only households that would seek out a home refinance mortgage.
household in this period. However, this overage is due entirely to the fact that white households are more likely to be homeowners than non-white households – 85.4% of owner specified households were white. Whites are clearly under-represented in the government-backed market for home purchase loans (70.6%).

Refinances are the most common type of loan, with 455,640 applications while home improvement applications were the least common. White applicants are over-represented in both of these markets, representing 87.5% and 90.3% of applicants, respectively.

The charts show the percentage racial distribution of Connecticut’s total households, owner-specified households, loan applications and loan originations (loans received) for various loan purposes. Chart 1 shows the distribution for all home purchase loans. White households show higher shares of loan applications and originations (80.1% and 82.3%) than of total households but slightly lower shares compared to owner households.

Non-white households are less likely to be owners than white households is in the lending shares. Hispanics have greater shares of home purchase applications (7.2%) and loan originations (6.3%) than owner households (5.4%), but not total households (11.1%). Asians have greater shares of applications and loans received (5.2% and 4.8%) than both total and owner households (3.4% and 2.8%). Blacks have a higher share of applications (5.8%) than owner households (5.2%), but a lower share of loan originations (4.9%).

The middle row of charts shows home purchases divided into conventional and government-backed loans, shown in charts 2 and 3. Noteworthy are the major difference between the two charts. Whites and Asians show much greater representations in the conventional market than the government-backed market, while the reverse is true for Hispanic and black households.

Disparities between households and loans are also greater for blacks and Hispanics in the refinance and home improvement markets than for other groups, shown on charts 4 and 5 on the bottom panel. In both markets white households have larger shares of loans than of owner households while black and Hispanic households have much smaller shares. Blacks have half the share of refinance loans originated (2.6%) than of owner households (5.2%) and Hispanic households show similar disparities.

Part of the underrepresentation for racial minorities applying for and obtaining mortgage loans is due to the fact that they tend to have lower incomes, which would on average make them less likely to qualify for a loan. Tables 2 and 3 show the distribution of applicants by income across racial groups and where the race of the applicant is not known in HMDA.3 Table 2 shows the number of applicants and table 3 shows the percentage income distribution of each racial group.

---

3 Incomes are based on the percentage of regional median income (RMI) for each metro and micro area in the state. HUD median regional family incomes (RMI) for each metro and micro area in the state were used to calculate the ranges – very low (RMI<50%), low (RMI 50 to 79%), middle (RMI 80 to 119%), upper middle (RMI 120 to 149%).
Whites and Asians have the largest representation of applicants in the high income categories, while both the numbers and percentages of blacks and Hispanics in this group are small. Over half of black and Hispanic applicants have low incomes, compared to less than one-third of Asians and white applicants. Because it is reasonable to expect that lower income applicants are typically less likely to obtain mortgage loans, income should be considered when comparing racial groups to one another.

It is also notable that for records with income information, about 13% of applicants do not contain racial information. 72,439 applied for loans by mail, the internet or phone, and were therefore precluded by HMDA rules from reporting their race. However, the income distributions for applicants with no race and applicants where race was known do not differ much, making it unlikely that missing race data biases our results for income.

---

high (RMI 150 to 199%) and very high (RMI 200% or more). Separate income cutoffs were applied to the income data in HMDA for each year an application was made.
Table 1: Connecticut Statewide: Home Mortgage Lending Applications by Loan Purpose and Race, 2010 to 2014

<table>
<thead>
<tr>
<th>Loan Purpose</th>
<th>Total Applicants</th>
<th>Total Applicants where race is known</th>
<th>% Asian</th>
<th>% Black</th>
<th>% Hispanic</th>
<th>% White</th>
<th>% Other Races</th>
<th>% of Total Applicants with Race Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Purchase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conventional</td>
<td>113,142</td>
<td>101,543</td>
<td>6.7</td>
<td>2.6</td>
<td>3.8</td>
<td>85.3</td>
<td>1.6</td>
<td>10.3</td>
</tr>
<tr>
<td>Government-backed</td>
<td>61,991</td>
<td>56,398</td>
<td>2.4</td>
<td>11.7</td>
<td>13.3</td>
<td>70.6</td>
<td>2.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Refinance</td>
<td>455,640</td>
<td>393,487</td>
<td>3.5</td>
<td>3.7</td>
<td>3.8</td>
<td>87.5</td>
<td>1.5</td>
<td>13.6</td>
</tr>
<tr>
<td>Home Improvement</td>
<td>20,372</td>
<td>18,593</td>
<td>1.9</td>
<td>3.5</td>
<td>3.1</td>
<td>90.3</td>
<td>1.2</td>
<td>8.7</td>
</tr>
</tbody>
</table>

![Chart 1: Connecticut Statewide Distribution of Households and Home Purchase Loans by Race](chart1)

![Chart 2: Connecticut Statewide Distribution of Households and Conventional Home Purchase Loans by Race](chart2)

![Chart 3: Connecticut Statewide Distribution of Households and Government-backed Home Purchase Loans by Race](chart3)

![Chart 4: Connecticut Statewide Distribution of Households and Home Refinance Loans by Race](chart4)

![Chart 5: Connecticut Statewide Distribution of Households and Home Improvement Loans by Race](chart5)
### Number of Applicants:

<table>
<thead>
<tr>
<th>Income Groups:</th>
<th>% of Regional Income</th>
<th>Total Applications</th>
<th>Applications where race is known</th>
<th>American Indian</th>
<th>Asian</th>
<th>Black</th>
<th>Hispanic</th>
<th>Pacific Islander</th>
<th>White</th>
<th>Two or More Races</th>
<th>Joint Races</th>
<th>Mail-Internet-Phone</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications where income is known:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Very Low</td>
<td>&lt; 50%</td>
<td>63,840</td>
<td>56,488</td>
<td>170</td>
<td>2,052</td>
<td>4,811</td>
<td>6,271</td>
<td>152</td>
<td>42,712</td>
<td>41</td>
<td>279</td>
<td>7,348</td>
</tr>
<tr>
<td>Low</td>
<td>50 to 79%</td>
<td>134,984</td>
<td>120,360</td>
<td>305</td>
<td>3,790</td>
<td>7,804</td>
<td>8,882</td>
<td>226</td>
<td>98,225</td>
<td>64</td>
<td>1,064</td>
<td>14,618</td>
<td>6</td>
</tr>
<tr>
<td>Middle</td>
<td>Middle</td>
<td>80 to 119%</td>
<td>154,010</td>
<td>136,744</td>
<td>270</td>
<td>5,410</td>
<td>5,522</td>
<td>5,527</td>
<td>201</td>
<td>117,881</td>
<td>80</td>
<td>1,853</td>
<td>17,255</td>
</tr>
<tr>
<td>Middle</td>
<td>Upper Middle</td>
<td>120 to 149%</td>
<td>78,467</td>
<td>69,168</td>
<td>102</td>
<td>3,166</td>
<td>1,651</td>
<td>1,745</td>
<td>78</td>
<td>61,136</td>
<td>32</td>
<td>1,258</td>
<td>9,299</td>
</tr>
<tr>
<td>High</td>
<td>High</td>
<td>150 to 199%</td>
<td>78,471</td>
<td>68,839</td>
<td>76</td>
<td>2,956</td>
<td>1,228</td>
<td>1,280</td>
<td>80</td>
<td>61,834</td>
<td>15</td>
<td>1,370</td>
<td>9,624</td>
</tr>
<tr>
<td>Very High</td>
<td>&gt;= 200%</td>
<td>102,867</td>
<td>88,565</td>
<td>97</td>
<td>3,925</td>
<td>982</td>
<td>1,317</td>
<td>78</td>
<td>80,626</td>
<td>20</td>
<td>1,520</td>
<td>14,295</td>
<td>7</td>
</tr>
<tr>
<td>Total applications with income</td>
<td></td>
<td>612,639</td>
<td>540,164</td>
<td>1,020</td>
<td>21,299</td>
<td>21,998</td>
<td>25,022</td>
<td>815</td>
<td>462,414</td>
<td>252</td>
<td>7,344</td>
<td>72,439</td>
<td>36</td>
</tr>
<tr>
<td>Income not reported</td>
<td>38,493</td>
<td>30,961</td>
<td>88</td>
<td>877</td>
<td>2,184</td>
<td>1,947</td>
<td>51</td>
<td>25,257</td>
<td>20</td>
<td>537</td>
<td>7,268</td>
<td>264</td>
<td></td>
</tr>
</tbody>
</table>

### % of Applicants with income reported:

<table>
<thead>
<tr>
<th>Income Groups:</th>
<th>% of Regional Income</th>
<th>Total Applications</th>
<th>Applications where race is known</th>
<th>American Indian</th>
<th>Asian</th>
<th>Black</th>
<th>Hispanic</th>
<th>Pacific Islander</th>
<th>White</th>
<th>Two or More Races</th>
<th>Joint Races</th>
<th>Mail-Internet-Phone</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications where income is known:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Very Low</td>
<td>&lt; 50%</td>
<td>10.4</td>
<td>10.5</td>
<td>16.7</td>
<td>9.6</td>
<td>21.9</td>
<td>25.1</td>
<td>18.7</td>
<td>9.2</td>
<td>16.3</td>
<td>3.8</td>
<td>10.1</td>
</tr>
<tr>
<td>Low</td>
<td>50 to 79%</td>
<td>22.0</td>
<td>22.3</td>
<td>29.9</td>
<td>17.8</td>
<td>35.5</td>
<td>35.5</td>
<td>27.7</td>
<td>21.2</td>
<td>25.4</td>
<td>14.5</td>
<td>20.2</td>
<td>16.7</td>
</tr>
<tr>
<td>Middle</td>
<td>Middle</td>
<td>80 to 119%</td>
<td>25.1</td>
<td>25.3</td>
<td>26.5</td>
<td>25.4</td>
<td>25.1</td>
<td>22.1</td>
<td>24.7</td>
<td>25.5</td>
<td>31.7</td>
<td>25.2</td>
<td>23.8</td>
</tr>
<tr>
<td>Middle</td>
<td>Upper Middle</td>
<td>120 to 149%</td>
<td>12.8</td>
<td>12.8</td>
<td>10.0</td>
<td>14.9</td>
<td>7.5</td>
<td>7.0</td>
<td>9.6</td>
<td>13.2</td>
<td>12.7</td>
<td>17.1</td>
<td>12.8</td>
</tr>
<tr>
<td>High</td>
<td>High</td>
<td>150 to 199%</td>
<td>12.8</td>
<td>12.7</td>
<td>7.5</td>
<td>13.9</td>
<td>5.6</td>
<td>5.1</td>
<td>9.8</td>
<td>13.4</td>
<td>6.0</td>
<td>18.7</td>
<td>13.3</td>
</tr>
<tr>
<td>Very High</td>
<td>&gt;= 200%</td>
<td>16.8</td>
<td>16.4</td>
<td>9.5</td>
<td>18.4</td>
<td>4.5</td>
<td>5.3</td>
<td>9.6</td>
<td>17.4</td>
<td>7.9</td>
<td>20.7</td>
<td>19.7</td>
<td>19.4</td>
</tr>
<tr>
<td>Total applications with income</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
2. Census Tract Non-origination Rates, Race and Income

Location matters in housing markets. Mortgage lending disparities may reflect neighborhood characteristics as well as applicant characteristics. Maps 1-5 show census tract maps of racial mixes, household income and lending data for different loan types.

Map 1 shows that racial minorities are concentrated in the state’s most urbanized areas, including the seven largest cities (Bridgeport, New Haven, Stamford, Hartford, Waterbury, Norwalk and Danbury) and a few nearby suburbs (East Hartford, New Britain, West Haven). These ten municipalities had 56% of the state’s non-white population in 2010-14, compared to just 15% of white population. The first map shows this uneven distribution very clearly. (Meriden and New London also show majority non-white neighborhoods).

Map 2 – census tract median incomes – mirrors the race map. Almost without exception, majority minority tracts are in the lowest income categories. Some of these tracts, especially those in the southwestern corner of the state, are surrounded by the highest income tracts in the state, with median household incomes of $100,000 or more.

Maps 3-5 show non-origination rates for three types of loans by census tracts. Non-origination rates include both loan denials and applications that do not result in a loan for other reasons. Both categories are potentially affected by race and their geographic distributions are highly correlated.

Map 3 shows that applicants were less likely to receive conventional home purchases in low income, majority non-white tracts than in other areas. Although many segregated inner city census tracts show no data because ownership rates are so low there, the overall pattern in Map 3 closely follows those in Maps 1 and 2. Higher than average non-origination rates are also evident in some rural, low- to middle-income tracts, particularly in Litchfield County.

Government-backed non origination rates (Map 4) follow the race and income maps less closely than those for conventional loans, partly because more areas show no data. However, non-origination rates are still higher in central city and surrounding census tracts. What is different is that high non-origination rates are also evident in some whiter, higher income tracts.

---

4 The simple correlation between census tract percent black or Hispanic and conventional home purchase loan non-origination rate is .58 and .64 with the loan denial rate (all significant at 99% confidence level).
Non-origination rates for home refinance loans (Map 5) mirror the race and income patterns even more than those for conventional home purchase loans. Again, applicants are less likely to receive applied-for loans in low income and majority non-white census tracts, both urban and suburban. This is particularly important since these areas almost certainly had the greatest need for refinanced loans because high rates of sub-prime, high-interest loans in earlier years.

5 The simple correlation between census tract percent black or Hispanic and refinance loan non-origination rate is .85 and .81 with the loan denial rate (all significant at 99% confidence level). The fact that these are stronger correlations than those for conventional purchases could be due to how changes in property values play a role in refinance purchase lending rates. For example, if property value growth is depressed in census tracts with larger percentages of blacks or Hispanics, then homeowner equity would be lower, all else equal, than in tracts with growing values, making it more difficult for a homeowner to refinance a loan. This is not necessarily the case for those seeking home purchase loans, as lenders may have fewer home asset requirements in making such loans and applicants may also be eligible for additional benefits not available to refinance applicants, such as those from first time buyer programs. Also, the home purchase applicants may have lived outside of these areas, possibly gaining housing equity assets from elsewhere, unlike refinance applicants who are more directly tied to the census tract where their home is located.
Data Source: U.S. Census Bureau, American Community Survey.
MAP 2: CONNECTICUT: Median Household Income by Census Tract, 2010 - 2014

Legend

- Statewide Value: $77,326
- Less than $35,000 (93)
- $35,000 to $54,999 (157)
- $55,000 to $74,999 (179)
- $75,000 to $99,999 (215)
- $100,000 to $134,999 (127)
- $135,000 or more (52)
- No data (6)

Note: Census Tracts with "No data" had fewer than 25 households in them.

Data Source: U.S. Census Bureau, American Community Survey.
MAP 3: CONNECTICUT: Conventional Home Purchase Non-Origination Rates by Census Tract, 2010 - 2014

Only first-lien mortgage applications for owner-occupied and 1-4 family unit homes are used for the calculation of the rate. Mortgages purchased by institutions were not included in the calculation.

Legend

Statewide Value: 27.4%

- 14.3 to 21.2% (88)
- 21.3 to 24.3% (134)
- 24.4 to 27.3% (152)
- 27.4 to 33.1% (185)
- 33.2 to 42.6% (109)
- 42.7 to 64.1% (44)
- No data (117)

Note: Census Tracts with "No data" had fewer than 25 mortgage applications.

MAP 4: CONNECTICUT: Government-backed Home Purchase Non-Origination Rates by Census Tract, 2010 - 2014

Legend

Statewide Value: 30.1%

- 4.7 to 21.9% (101)
- 22.0 to 26.0% (134)
- 26.1 to 30.0% (141)
- 30.1 to 35.0% (130)
- 35.2 to 42.6% (106)
- 42.7 to 74.2% (73)
- No data (144)

Note: Census Tracts with "No data" had fewer than 25 mortgage applications.

MAP 5: CONNECTICUT:
Home Refinance Non-Origination Rates
by Census Tract, 2010 - 2014

Legend

Statewide Value: 39.6%

- 25.1 to 33.9% (97)
- 34.0 to 36.8% (124)
- 36.9 to 39.5% (118)
- 39.6 to 44.1% (171)
- 44.2 to 54.9% (161)
- 55.0 to 85.1% (128)
- No data (30)

Note: Census Tracts with "No data" had fewer than 25 mortgage applications.

Clusters With Large Majority Non-white Populations in Connecticut

There are several segregated majority non-white populations clustered within Connecticut that can be seen in the red and dark red areas on Map 1. The largest of these clusters formed by joining adjacent majority non-white census tracts, is in the Hartford metro. This cluster covers much of the central city and some of its surrounding suburbs, as shown in table 4.

Harford’s cluster includes 203,222 persons, including 72,785 blacks, 71,764 Hispanics, 44,140 whites, 8,753 Asians and 5,780 persons of other races. Two other large clusters with roughly 150,000 people are Bridgeport and New Haven. Like Hartford, both are about evenly split between blacks and Hispanics.

More moderate sized clusters of majority non-white census tracts, between 32,000 and 67,000 people, are found in Stamford, Waterbury, New Britain, Danbury and Norwalk. Unlike the clusters with larger populations, these areas have much greater numbers of Hispanics than blacks -- numbers that are also greater than white or other racial groups. New Britain itself is very nearly a majority Hispanic cluster.

There are two other smaller majority non-white clusters identified with nearly 15,000 people in New London and Meriden. These areas are also more predominantly Hispanic, with New London having a relatively sizeable number of whites and Meriden having a majority Hispanic population.

Majority non-white clusters are areas that are heavily concentrated in central cities and inner suburbs, containing 138.7 square miles of land—only 2.9% of the total land area in the state. They also make up a significant share of the state’s population and demonstrate the uneven, segregated housing patterns in Connecticut. Altogether the majority-minority clusters contain 801,292 people. This is about 22% of the population in the state but only 8.4% of Connecticut’s whites live in them, compared to 68.9% of the state’s blacks, 57.5% of Hispanics, 24.3% of Asians and 28.4 of all others.
<table>
<thead>
<tr>
<th>Adjacent Majority-Non-White Census Tracts:</th>
<th>Total Land Area Square Miles</th>
<th>Total White</th>
<th>Black</th>
<th>Asian</th>
<th>All Other</th>
<th>Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hartford and Surrounding Area</td>
<td>54.6</td>
<td>203,222</td>
<td>44,140</td>
<td>72,785</td>
<td>8,753</td>
<td>5,780</td>
</tr>
<tr>
<td>Bridgeport and Surrounding Area</td>
<td>16.6</td>
<td>149,424</td>
<td>28,090</td>
<td>52,868</td>
<td>5,749</td>
<td>3,741</td>
</tr>
<tr>
<td>New Haven and Surrounding Area</td>
<td>22.5</td>
<td>145,532</td>
<td>37,790</td>
<td>55,887</td>
<td>5,525</td>
<td>5,254</td>
</tr>
<tr>
<td>Stamford</td>
<td>6.3</td>
<td>67,361</td>
<td>21,198</td>
<td>13,187</td>
<td>6,104</td>
<td>1,171</td>
</tr>
<tr>
<td>Waterbury</td>
<td>15.5</td>
<td>65,687</td>
<td>19,244</td>
<td>15,023</td>
<td>837</td>
<td>2,128</td>
</tr>
<tr>
<td>New Britain</td>
<td>7.3</td>
<td>45,421</td>
<td>15,887</td>
<td>5,229</td>
<td>1,342</td>
<td>1,175</td>
</tr>
<tr>
<td>Danbury</td>
<td>6.4</td>
<td>37,999</td>
<td>14,916</td>
<td>2,603</td>
<td>1,927</td>
<td>2,516</td>
</tr>
<tr>
<td>Norwalk</td>
<td>5.1</td>
<td>32,985</td>
<td>10,800</td>
<td>8,114</td>
<td>2,340</td>
<td>831</td>
</tr>
<tr>
<td>New London</td>
<td>2.5</td>
<td>14,904</td>
<td>5,723</td>
<td>2,958</td>
<td>480</td>
<td>491</td>
</tr>
<tr>
<td>Meriden</td>
<td>1.9</td>
<td>14,836</td>
<td>4,388</td>
<td>2,047</td>
<td>132</td>
<td>831</td>
</tr>
</tbody>
</table>

| Total Majority non-white                      | 138.7                       | 801,282     | 211,717| 235,621| 35,091 | 23,900 | 294,953 |
| Total                                         | 4,842.6                     | 3,592,053   | 2,508,360| 342,043| 144,619| 84,236 | 512,795 |
| % of Total                                    | 2.9                         | 22.3        | 8.4    | 68.9  | 24.3   | 28.4   | 57.5    |

Source: U.S. Census Bureau.
3. Non-origination/Denial Rates by Applicant Race and Income

The following charts—6 to 13, show that there are also mortgage lending disparities by race of the individual applicants. Black and Hispanic applicants are more likely to be denied home purchase and refinance loans than whites even when controlling for income. In fact, very high income blacks are denied loans more frequently than low income whites.

The bar charts on the left side of the following page show non-origination rates by race. The red portion of the bars show the percent of loans that were denied by the lender (at the final stage of the loan application process). The gray portion of the bars show other non-originations, including applications withdrawn by the applicant or turned down by the lender because of an incomplete application. For conventional home purchases (chart 6), 42.0% of black applicants did not receive a loan – 22.4% were denied the loan outright by lenders and 19.6% did not complete the application process for other reasons. Hispanics also had relatively high non-origination rates. White applicants, on the other hand, had a non-origination rate of 24.9% and only 8.7% of white applicants were denied outright by lenders.

The line charts on the right side of the page show loan denial rates by race and income level. In these charts each line shows the denial rate for a racial group for each of six income ranges, ranging from very low income on the left to very high income on the right.

For conventional home purchases (chart 7), denial rates tend to drop as income rises as expected. However, blacks are consistently denied loans at much greater rates than whites at every income level. In fact very high income (> 200% of RMI) blacks were denied loans at a greater rate than low income (50% to 79% of RMI) whites. Hispanics have similar, but smaller denial disparities with whites, with the exception of those with high incomes (150% to 199% of RMI).

The second row show charts 8 and 9, with the results of government-backed home purchases. Significant denial rate disparities are evident for these loans as well, although the gaps are not as wide.

Refinance denial rates, shown on charts 10 and 11, are higher than for home purchases, but the racial disparities are very similar to those for conventional home purchase loans. One difference is that refinance disparities for blacks and Hispanics are wider for some middle and high income groups than for lower incomes. Blacks that are middle income or higher are nearly twice as likely to be denied as whites with comparable incomes and very high income blacks are even

---

6 For the race by income charts we focus on denial rates as they are likely to be more indicative of potential discrimination since lenders have more discretion over making a loan denial than over other non-origination outcomes. In addition, during the HMDA reporting process, reporting errors can occur where non-originations (other than a denial) are incorrectly recorded as the last date of communication between applicants and lenders, when the final result was actually a loan denial or origination. This error primarily occurs when the dates are recorded by the lender using an automated coding processes.

7 HUD median regional family incomes (RMI) for each metro and micro area in the state were used to calculate the ranges – very low (RMI<50%), low (RMI 50 to 79%), middle (RMI 80 to 119%), upper middle (RMI 120 to 149%), high (RMI 150 to 199%) and very high (RMI 200% or more). Separate income cutoffs were applied to the income data in HMDA for each year an application was made.
more likely to be denied than low income whites. Hispanics also have large denial disparities with whites, regardless of income.

Finally, there are also large disparities in home improvement loan denial rates for blacks and Hispanics compared to whites (on bottom, charts 12 and 13). Over half of black and Hispanic applicants are turned down for these loans, compared to just under one-third of whites. The disparities remain large across incomes, except for applicants with the very highest incomes.
4. Changing Loan Patterns from 2010 to 2014

Several home mortgage lending trends from 2010 to 2014 impacted minority borrowers. There are major increases in the number of conventional loans made during the period and significant decreases in the number of government-backed loans (chart 14). The decrease in government-backed loans likely had a negative effect on the ability of blacks and Hispanics to obtain loans, as they are overrepresented in the government-backed market. Government-backed loans also tend to be more expensive, so a shift away from these type of loans towards the conventional market has some positive implications, especially if the participation of racial minorities can be improved in the conventional market.8

In the refinance market there was a major drop in loan volumes between 2013 and 2014 (chart 15). This drop accompanied a mortgage interest rate increase (of nearly a point) that year, making loans more costly. Denial and other non-origination rates have remained relatively stable over time, with one exception – refinance denial rates rose significantly by 5 points between 2013 and 2014 (charts 16-18).9

Charts 19 and 20, on the bottom of the next page, show refinance denial rates by race and income for 2013 and 2014. Comparing the two charts shows that denial rates rose between the year and racial disparities remained stable, except for that of high income blacks and whites, where the ratio of black to white denials rose from 1.4 to 1 in 2013 to 2 to 1 in 2014.

---

8 Black households were in fact able to make a shift towards conventional home purchases, coupled with a slight decline in total refinance loans between 2010 and 2014. However, the increase in conventional loans was coupled with a greater decrease in government backed loans, meaning that the already low black homeownership rate in the state did not improve. Hispanics made a greater shift toward conventional loans coupled with a smaller decrease in government-backed loans, leading to a small increase in total home purchase loans during the period. (There were 239 more conventional mortgages made to blacks in 2014, compared to 2010, but 261 fewer government-backed loans. For Hispanics, there were 400 more conventional loans made in 2014 and 134 fewer government-backed loans.

9 There were 9,658 fewer refinance loans made in 2014 than in 2013. 4,279 of the decrease is explained by increasing non-origination rates, which climbed from about 39% in 2013 to 49% in 2014. Overall, potential borrowers tended to shy away from higher interest refinances and for those that did apply, lenders were more likely to turn down their loans.
Note: There were 9,658 fewer refinance applications in 2014 compared to 2013 (or -50.1%) and 4,279 fewer refinance loans in 2014 than expected given increase in non-origination rates from 2013 (or -27.7%).
5. Non-origination Rates by Race, Income and Neighborhood Racial Composition

Prior sections show that there are racial disparities in Connecticut in loan applicant denial rates and major differences in loan outcomes by location. Blacks and Hispanics are more likely to be denied loans than whites and majority non-white census tracts are less likely to receive loans than predominately white tracts. The following tables examine whether all racial groups fare worse in census tracts with large percentages of minorities, or whether the locational differences are driven by the fact that black and Hispanic applicants have higher denial rates.

Table 5 shows non-origination rates for each type of loan for each race in four types of locations (tracts with very low, low, moderate and high minority shares). Although the racial disparities evident in earlier tables and charts remain for virtually every type of census tract, all racial groups, including whites, are less likely to obtain a loan in racially integrated and majority non-white census tracts than in predominantly white tracts, regardless of income.

For instance, the left panel of the first table shows that the denial rate for white applicants of all incomes for conventional home purchase loans is 24.2% in very low-minority neighborhoods while it is 30.8% in high-minority neighborhoods. Similarly, the right panel shows that the denial rate for high- and very high-income whites is 23.9% in very low-minority tracts and 31.8% in very high-minority tracts.

In general, there are large differences between neighborhood types. Census tracts with the smallest percentage minority have the lowest conventional home purchase non-origination rates—tracts with 0 to 14% minority have non-origination rates of 24.8%, as compared to majority non-white tracts, with rates of 35.9%.

The trend of increasing non-origination rates in tracts with higher percentages of racial minorities is evident for all of the reported racial groups, regardless of the loan type or the income group.

Table 6 shows the same data for denial rates. Denial rates show the same general trend as non-origination rates, when breaking them down by census tract minority percentages. Generally, as the census tract’s minority percent increases, so do denial rates. For conventional home purchases the loan denial rate in the whitest tracts is less than half that of the rate in tracts that are majority non-white, with denial rates of 8.3% for the whitest tracts, 0 to 14% minority, and 17.9% for majority non-white tracts, with 50% or more minority.10

Similarly denial rates for each of the racial groups increase with increasing minority shares for the census tract. This is true for all applicants (left panel) as well as high- and very high-income applicants.

---

10 The simple correlation between census tract percent minority and conventional home purchase loan denial rate was .62 (significant at 99% confidence level).
<table>
<thead>
<tr>
<th>Conventional Home Purchases</th>
<th>Racial Composition of Tract:</th>
<th>Total %</th>
<th>White %</th>
<th>Minority%</th>
<th>Hispanic%</th>
<th>Black and Hispanic%</th>
<th>White %</th>
<th>Minority%</th>
<th>Hispanic%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 14% Minority</td>
<td></td>
<td>24.8</td>
<td>24.2</td>
<td>30.7</td>
<td>32.0</td>
<td>23.9</td>
<td>28.6</td>
<td>28.6</td>
<td></td>
</tr>
<tr>
<td>15 to 29% Minority</td>
<td></td>
<td>25.0</td>
<td>23.9</td>
<td>31.0</td>
<td>33.3</td>
<td>23.8</td>
<td>26.9</td>
<td>28.2</td>
<td></td>
</tr>
<tr>
<td>30 to 49% Minority</td>
<td></td>
<td>27.3</td>
<td>24.7</td>
<td>35.9</td>
<td>38.3</td>
<td>23.6</td>
<td>27.9</td>
<td>28.6</td>
<td></td>
</tr>
<tr>
<td>50% or more Minority</td>
<td></td>
<td>35.9</td>
<td>30.8</td>
<td>43.2</td>
<td>45.9</td>
<td>31.8</td>
<td>33.6</td>
<td>38.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Government-backed Home Purchases</th>
<th>Racial Composition of Tract:</th>
<th>Total %</th>
<th>White %</th>
<th>Minority%</th>
<th>Hispanic%</th>
<th>Black and Hispanic%</th>
<th>White %</th>
<th>Minority%</th>
<th>Hispanic%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 14% Minority</td>
<td></td>
<td>26.2</td>
<td>25.5</td>
<td>31.9</td>
<td>33.0</td>
<td>24.3</td>
<td>26.8</td>
<td>28.5</td>
<td></td>
</tr>
<tr>
<td>15 to 29% Minority</td>
<td></td>
<td>26.2</td>
<td>24.7</td>
<td>31.9</td>
<td>32.8</td>
<td>24.4</td>
<td>32.4</td>
<td>32.5</td>
<td></td>
</tr>
<tr>
<td>30 to 49% Minority</td>
<td></td>
<td>29.4</td>
<td>27.0</td>
<td>33.3</td>
<td>33.5</td>
<td>25.0</td>
<td>34.8</td>
<td>29.4</td>
<td></td>
</tr>
<tr>
<td>50% or more Minority</td>
<td></td>
<td>37.9</td>
<td>33.0</td>
<td>40.0</td>
<td>40.1</td>
<td>31.3</td>
<td>39.7</td>
<td>41.1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Refinances</th>
<th>Racial Composition of Tract:</th>
<th>Total %</th>
<th>White %</th>
<th>Minority%</th>
<th>Hispanic%</th>
<th>Black and Hispanic%</th>
<th>White %</th>
<th>Minority%</th>
<th>Hispanic%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 14% Minority</td>
<td></td>
<td>34.8</td>
<td>34.4</td>
<td>41.5</td>
<td>47.7</td>
<td>29.7</td>
<td>35.4</td>
<td>41.9</td>
<td></td>
</tr>
<tr>
<td>15 to 29% Minority</td>
<td></td>
<td>37.5</td>
<td>36.6</td>
<td>44.0</td>
<td>51.1</td>
<td>31.1</td>
<td>36.5</td>
<td>44.1</td>
<td></td>
</tr>
<tr>
<td>30 to 49% Minority</td>
<td></td>
<td>42.5</td>
<td>40.0</td>
<td>51.8</td>
<td>55.8</td>
<td>33.1</td>
<td>41.0</td>
<td>43.9</td>
<td></td>
</tr>
<tr>
<td>50% or more Minority</td>
<td></td>
<td>52.9</td>
<td>47.2</td>
<td>59.2</td>
<td>60.1</td>
<td>39.8</td>
<td>54.6</td>
<td>58.1</td>
<td></td>
</tr>
</tbody>
</table>

Table 6: Connecticut Statewide: Denial Rates of Home Mortgage Applications by Race, Income, Loan Purpose and Racial Composition of Neighborhoods

<table>
<thead>
<tr>
<th>Racial Composition of Tract:</th>
<th>Conventional Home Purchases</th>
<th>Government-backed Home Purchases</th>
<th>Refinances</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total %</td>
<td>White %</td>
<td>Minority%</td>
</tr>
<tr>
<td>0 to 14% Minority</td>
<td>8.3</td>
<td>8.1</td>
<td>11.0</td>
</tr>
<tr>
<td>15 to 29% Minority</td>
<td>8.9</td>
<td>8.3</td>
<td>12.0</td>
</tr>
<tr>
<td>30 to 49% Minority</td>
<td>11.5</td>
<td>10.0</td>
<td>16.6</td>
</tr>
<tr>
<td>50% or more Minority</td>
<td>17.9</td>
<td>13.4</td>
<td>24.3</td>
</tr>
</tbody>
</table>

6. Government-backed and Sub-prime Loans by Location

During the subprime mortgage boom in the early to mid-2000s, high-cost, sometimes predatory, subprime loans were concentrated in communities of color. Overall mortgage lending declined during the great recession and subprime loans completely disappeared for a while. However, there are growing concerns that qualified minorities are being steered away from conventional loans to more expensive government-backed loan products, in effect, creating another dual market, one dominated by conventional lending to whites and another with much higher government-backed lending rates for blacks and Hispanics.

Map 6 shows that the percentage of home purchase loans that are government-backed are highest in many of the same tracts with large percentages of minorities and lower median household incomes (Maps 1 and 2).11 This is especially true in the middle part of the state, containing the Hartford and New Haven metro areas.

Government-backed loans; however, are less commonly issued in Fairfield County, even in low income, majority non-white places like Norwalk and Danbury. In fact, outside the middle part of the state, there is an east-west difference in government-backed lending, where rural and suburban and rural tracts in the easternmost parts of the state have higher percentages of government-backed loans, while a majority of tracts in the westernmost part of the state have much lower shares of government-backed loans.

Government-backed loans, FHA loans in particular, are typically more costly than conventional loans because they increasingly have higher annual premiums (to be paid through the life of the loan), rising loan insurance fees and more stringent mortgage insurance payment requirements.12 Subprime loans by definition are more costly, greater than 3 points above the prime interest rate set by the U.S. Treasury Department. Features that made subprime loans predatory – ignoring applicant income or ability to repay the loan, for instance – have been made illegal by the Dodd-Frank legislation. Nevertheless, there has been a recent uptick in subprime lending, raising concerns that racial minorities may again be targeted with subprime mortgages when they would have otherwise qualified for lower-cost loans.

Map 7 shows that subprime lending continues to be more concentrated in low income, majority non-white tracts, areas commonly located in central cities and inner suburbs. The percentage of home purchases that are subprime is significantly greater in these areas, with rates as high as 24%, nearly eight times higher than the statewide average. Bridgeport city, in particular, has an especially large concentration of tracts with high rates of subprime lending.

11 The simple correlation between percentage minority and government-backed loans in census tracts is 0.58.
12 Federal Housing Administration (FHA) loans make up 82% of the home purchase government-backed market.
MAP 6: CONNECTICUT: Percentage of Home Purchase Loans that are Government-backed by Census Tract, 2010 - 2014

Map 7: Connecticut: Percentage of Home Purchase Loans that are Subprime by Census Tract, 2010 - 2014

Legend

Statewide Value: 2.9%

- 0.0 to 0.9% (145)
- 1.0 to 2.8% (269)
- 2.9 to 4.7% (148)
- 4.8 to 7.8% (116)
- 7.9 to 11.1% (53)
- 11.2 to 23.9% (27)
- No data (71)

Note: Census Tracts with "No data" had fewer than 25 mortgage loans.

7. Government-backed and Sub-prime Loans by Race, Income and Location

There were significant changes in the home purchase market between 2010 and 2014. The total number of government-backed loans have decreased over time; however, the share of these loans that are subprime have been increasing since 2012—as a result, low and moderate income home purchasers increasingly have to rely on subprime loans in the government-backed market. There are also large racial disparities within these lending markets – blacks and Hispanics are much more likely to receive higher cost government-backed and subprime home purchase loans than whites, even when controlling for income.

The share of home purchase loans that are government-backed decreased during the period from 2010 to 2014, while the number of overall purchase loans have increased slightly (charts 21 and 23, next page). Despite this, there was an even more dramatic increase subprime lending in the home purchase market. Chart 22 shows that home purchase subprime lending rates shot up from 0.8% in 2010 to 7.1% in 2014, with most of the increase happening in the last two years. Home improvement and refinance subprime rates have also risen recently, but their rate increases are outpaced by those in the home purchase market.

The rise in subprime home purchase loans is explained entirely by the issuance of government-backed loans. Chart 24 shows that the subprime lending rate for government-backed loans grew fifteen-fold in two years, from 1.6% in 2012 to 24.1% in 2014. At the same time, the subprime lending rate for conventional home purchases was static at less than 1%.

There are large racial disparities when it comes to government-backed and subprime home purchases. Blacks and Hispanics are more than twice as likely to receive a government-backed loan during the period as whites (chart 25) – 72.9% of black home purchase applicants receive government-backed loans, compared to 65.9% of Hispanics and 31.1% of whites.

Government-backed home purchase disparities remain even when controlling for income. Chart 26 shows that although there is a drop in the share of government-backed loans as income rises, racial disparities remain. Blacks are about twice as likely to receive a government-backed loan as whites at the middle income levels and below. The government-backed lending rate does drop to under 40% for black borrowers with the top income level. But even at that income, the government-backed lending rate of black borrowers is 3.1 times the rate for whites.

Home purchase subprime lending rates for black and Hispanic borrowers are more than three times higher than for whites (chart 27) – 8.4% of blacks received subprime loans, compared to 7.8% of Hispanics and 2.3% of whites. These disparities hold across income levels, except for high income Hispanics, shown on chart 28.

These disparities are also found at the neighborhood level (table 7, page after charts). Majority non-white tracts are twice as likely to receive government-backed and more than three times as likely to receive subprime loans as the whitest tracts (first column). Home purchases in majority non-white tracts are 58.6% government-backed and 6.6% subprime, compared to 28.6% and 2.1% respectively in the whitest tracts.
Table 7: Connecticut Statewide: Home Purchase Loans that Are Government-backed or Subprime by Race, Income and Racial Composition of Neighborhoods

<table>
<thead>
<tr>
<th>% Government-backed</th>
<th>Total %</th>
<th>White %</th>
<th>Minority%</th>
<th>Hispanic%</th>
<th>White %</th>
<th>Minority%</th>
<th>Hispanic%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racial Composition of Tract:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 14% Minority</td>
<td>28.6</td>
<td>28.3</td>
<td>31.9</td>
<td>51.0</td>
<td>9.5</td>
<td>10.8</td>
<td>19.9</td>
</tr>
<tr>
<td>15 to 29% Minority</td>
<td>33.1</td>
<td>31.7</td>
<td>40.0</td>
<td>59.7</td>
<td>11.2</td>
<td>12.5</td>
<td>24.5</td>
</tr>
<tr>
<td>30 to 49% Minority</td>
<td>44.5</td>
<td>39.1</td>
<td>59.0</td>
<td>72.8</td>
<td>14.8</td>
<td>19.1</td>
<td>37.5</td>
</tr>
<tr>
<td>50% or more Minority</td>
<td>58.6</td>
<td>41.6</td>
<td>72.3</td>
<td>78.1</td>
<td>12.7</td>
<td>20.2</td>
<td>34.7</td>
</tr>
</tbody>
</table>

% Subprime

| Racial Composition of Tract: |         |         |           |           |         |           |           |
| 0 to 14% Minority           | 2.1      | 2.0     | 2.7       | 5.0       | 0.9     | 1.1       | 1.9       |
| 15 to 29% Minority          | 2.5      | 2.3     | 3.8       | 6.5       | 1.1     | 1.4       | 3.2       |
| 30 to 49% Minority          | 4.3      | 3.3     | 7.2       | 9.4       | 1.8     | 2.6       | 7.3       |
| 50% or more Minority        | 6.6      | 4.2     | 8.5       | 9.3       | 1.6     | 2.0       | 4.2       |

8. Lending Shortfalls by Racial Composition of Census Tracts

Previous sections show that racial disparities in loan non-origination/denial rates remain after accounting for income differences. Another way to quantify these lending disparities is to develop a counterfactual that estimates what lending patterns would be if loans were made to all Connecticut homeowners according to income alone. The results can then be compared to actual lending patterns to estimate shortfalls or surpluses in the numbers of loans in different types of communities or neighborhoods. Estimates of shortfalls and surpluses for Connecticut census tracts that control for both income and owner occupancy rates show major shortfalls of mortgage loans in racially diverse and majority non-white neighborhoods.

Table 8 shows the actual numbers of loans originated (for each loan type) in different types of census tracts grouped by the non-white share of the population. The distribution of actual loans reflects both the distribution of population across the tract types and the fact that incomes and home-ownership rates are lower in racially diverse areas than in predominantly white areas.

Chart 29 shows loan shortfalls (above zero) and surpluses (below zero). Total home purchase loans are represented by dark blue bars; conventional home purchase loans by medium shaded blue bars; government-backed loans by light blue bars; and home improvement loans by maroon bars. The percent minority in the census tracts are grouped horizontally from a low percentage minority, 0 to 7.4% (on the left) to a high percentages minority, 75 to 100% minority (on the right).

The chart shows that there are shortfalls of home purchase loans in census tracts that are 30% or more minority with the numbers increasing dramatically at higher non-white shares. For instance, the shortfall for total home purchase loans in the tracts that are 30% to 49.9% non-white was 216 loans – there were 216 fewer loans in those tracts than one would expect given the number of homeowners in each income range in the tracts. This represented 1.6% of total loans actually made in those tracts. The equivalent numbers for census tracts that are more than 75% non-white were even more striking.

---

13 Other commonly cited factors in non-origination rates include borrower assets, length of employment, credit history, loan-to-value ratios, and use of second lien mortgages. Many of these features are likely to have a degree of collinearity with income, for instance, lower income households are generally less likely to have financial assets, long employment histories, strong credit background, and less likely to avoid use of a second lien to secure a loan. Others such as loan-to-value ratios are less clearly related to income.

14 Shortfall estimates were made separately for each region (metro/micro area). These were summed to get statewide totals. The expected number of loans for a specific tract in a specific region is calculated in two steps. First, the actual metro-wide (or micro-wide) distribution of loans across income groups is calculated for each metro or micro area using reported incomes in the HMDA data. The calculation is made separately for each loan type (conventional purchases, government-backed purchases, refinesances and home improvement). The income groups were based on six income categories found in the 2010-2014, 5-year American Community Survey (ACS), U.S. Census Bureau. Second, the regional total of loans made to each income group were distributed across the tracts in the region based on each tracts share of homeowners in the relevant income range. For instance, if there were 1,000 loans made to borrowers in a particular income range (in the HMDA data) and 5% of all owner households in that income range resided in a particular census tract, then that tract would be assigned 50 loans (1,000 x 0.05 = 50). The calculation was repeated separately for each of the six regions in Connecticut and for each loan type. Also see Appendix for more information about the shortfall calculation.
non-white are dramatically larger – a shortfall of 1,457 loans, which represents 33.9% of the actual number of loans made in those tracts.

Total home purchase loan shortfalls in racially diverse tracts (n = 216) are due to losses in conventional home purchase loans, for which there are 1,090 fewer actual loans than expected. There are significant shortfalls in each of the racially diverse and majority non-white tract types in conventional loans combined with significant, but smaller, surpluses in government-backed loans and small shortfalls in home improvement loans.

The shortfalls in home refinance loans (chart 30) in racially diverse tracts are even more dramatic. The shortfalls range from 23% to 158.9% of actual refinance loans. If the distribution of loans reflected only income and the numbers of homeowners, then census tracts with 75% or more minority would have received 6,316 more refinance loans, or two and one-half times the actual number of refinance loans made.

The results for the less diverse groups of tracts are essentially mirror images of those for the diverse tracts. The actual numbers of conventional home purchase, home improvement and refinance loans to homeowners exceed the expected number in each of the three groups of less diverse tracts, while each shows a shortfall in government-backed loans.
Table 8: Connecticut Statewide Loans by Minority Percentage in Census Tracts*

<table>
<thead>
<tr>
<th>Minority %:</th>
<th>Conv. H. Purchase</th>
<th>Govt. H. Purchase</th>
<th>Home Improve.</th>
<th>Refinance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 7.4%</td>
<td>15,126</td>
<td>6,542</td>
<td>3,403</td>
<td>53,680</td>
</tr>
<tr>
<td>7.5 to 14.9%</td>
<td>29,912</td>
<td>11,374</td>
<td>4,936</td>
<td>96,731</td>
</tr>
<tr>
<td>15 to 29.9%</td>
<td>22,931</td>
<td>11,160</td>
<td>3,054</td>
<td>67,013</td>
</tr>
<tr>
<td>30 to 49.9%</td>
<td>7,720</td>
<td>6,185</td>
<td>1,177</td>
<td>22,433</td>
</tr>
<tr>
<td>50 to 74.9%</td>
<td>4,220</td>
<td>4,722</td>
<td>520</td>
<td>11,102</td>
</tr>
<tr>
<td>75 to 100%</td>
<td>1,281</td>
<td>3,009</td>
<td>227</td>
<td>3,976</td>
</tr>
<tr>
<td>Total</td>
<td>81,190</td>
<td>42,992</td>
<td>13,317</td>
<td>254,935</td>
</tr>
</tbody>
</table>

* where income of applicant and location of loan are known.

Chart 29: Connecticut Statewide Shortfalls in Home Purchase and Improvement Loans, 2010 to 2014

Chart 30: Connecticut Statewide Shortfalls in Home Refinance Loans, 2010 to 2014
9. Lending Shortfalls by Location

Although there is a general pattern of loan shortfalls in racially diverse and majority non-white census tracts (and surpluses in whiter tracts), there are exceptions within these areas. For instance, while in sum there is a greater shortfall of home purchase loans in majority non-white tracts, there are individual census tracts that are less than 7.5% minority that also have major shortfalls. The variability can be seen by comparing the statewide map of minority shares (Map 1) with the locational distribution of loan shortfalls/surpluses (Maps 8-12). Shortfalls – areas that are receiving fewer loans than one would expect given their homeowner income distributions – in home purchase loans are most often, but not always, the highest in majority non-white tracts.15

Refinance loan shortfall patterns (Map 11) most closely resemble non-white shares in Map 1. The greatest refinance shortfalls nearly always fall in the areas highlighted in the discussion of map 1 -- the seven largest cities (Bridgeport, New Haven, Stamford, Hartford, Waterbury, Norwalk, Danbury) and a few nearby suburbs (East Hartford, New Britain, West Haven). Shortfalls are not always highest in the inner core locations of central cities; however, because oftentimes these locations have large shares of rental housing so there are very few homeowners in those areas to begin with. In this case, it is the nearby suburbs that tend to show the greatest shortfalls – including East Hartford, Bloomfield and Windsor near Hartford; West Haven and East Haven near New Haven; Stratford near Bridgeport; and Naugatuck near Waterbury.

The pattern of home improvement loan shortfalls (Map 12) is more similar to the refinance map than home purchase maps, but it is a comparably noisy map, due to the fact that there is an overall small number of home improvement loans to begin with and that changes on the map can result from relatively small increases or decreases in loans.

15 The simple correlations with the percent black or Hispanic is .36 for conventional loan shortfalls as a percent of actual conventional loans, -.33 for government-backed loans and .50 for refinance loans (all significant at 99% confidence level).
MAP 8: CONNECTICUT:
Shortfalls in Home Purchase Loans,
Controlling for Income and Number of Owner Households,
2010 to 2014

Data Source: Federal Financial Institutions Examination Council, Home Mortgage Disclosure Act; U.S. Census Bureau, American Community Survey.

Legend

-208 to -45 (81)
-25 to -24 (78)
-14 to -1 (210)
0 to 24 (286)
25 to 44 (120)
45 to 107 (58)

Loan shortfalls are the expected number of loans (given a census tract’s income distribution) minus the number of actual number of loans. The expected number of loans control for both income and the owner occupancy rate.

Only first-lien mortgage applications for owner-occupied and 1-4 family unit homes are used for the calculation of the rate. Mortgages purchased by institutions were not included in the calculation.
MAP 9: CONNECTICUT: Shortfalls in Conventional Home Purchase Loans, Controlling for Income and Number of Owner Households, 2010 to 2014

Loan shortfalls are the expected number of loans (given a census tract’s income distribution) minus the number of actual number of loans. The expected number of loans control for both income and the owner occupancy rate.

Legend:
-219 to -50 (100)
-49 to -25 (77)
-24 to -1 (162)
0 to 24 (287)
25 to 49 (144)
50 to 113 (63)

Data Source: Federal Financial Institutions Examination Council, Home Mortgage Disclosure Act; U.S. Census Bureau, American Community Survey.
MAP 10: CONNECTICUT: Shortfalls in Government-backed Home Purchase Loans, Controlling for Income and Number of Owner Households, 2010 to 2014

Loan shortfalls are the expected number of loans (given a census tract's income distribution) minus the actual number of loans. The expected number of loans control for both income and the owner occupancy rate.

Data Source: Federal Financial Institutions Examination Council, Home Mortgage Disclosure Act; U.S. Census Bureau, American Community Survey.
MAP 11: CONNECTICUT:
Shortfalls in Home Refinance Loans,
Controlling for Income and Number of Owner Households,
2010 to 2014

Loan shortfalls are the expected number of loans (given a census tract’s income distribution) minus the number of actual number of loans. The expected number of loans control for both income and the owner occupancy rate.

Legend

-532 to -115 (104)
-114 to -55 (87)
-54 to -1 (153)
0 to 54 (254)
55 to 114 (168)
115 to 316 (67)

Data Source: Federal Financial Institutions Examination Council, Home Mortgage Disclosure Act; U.S. Census Bureau, American Community Survey.
MAP 12: CONNECTICUT: Shortfalls in Home Improvement Loans, Controlling for Income and Number of Owner Households, 2010 to 2014

Loan shortfalls are the expected number of loans (given a census tract’s income distribution) minus the number of actual number of loans. The expected number of loans control for both income and the owner occupancy rate.

Data Source: Federal Financial Institutions Examination Council, Home Mortgage Disclosure Act; U.S. Census Bureau, American Community Survey.
10. Metro Comparisons

This section compares mortgage denial and loan shortfall disparities by race and income groups, across metropolitan and micropolitan areas in Connecticut. While racial lending disparities are common within these areas, some stand out as having particularly disparate lending patterns. Willimantic has considerably larger denial disparities in conventional home purchase loans and Hartford has comparably large loan shortfalls to majority non-white census tracts, the largest among metros for conventional home purchases.

For a detailed breakdown of the data components for each metro and micro area see the addendum figures and maps in the Appendix.

a. Metro Loan Denial Disparities

Blacks and Hispanics are denied loans more often than whites, regardless of their income or the metro or micro area where they are applying. While these differences remain somewhat stable across metros, there are some distinctions, both in the denial rates and the disparity in these denials between combined black and Hispanic applicants and those of white applicants.

For low income and middle income groups in the conventional home purchase market, both the denial rate and the disparities between blacks/Hispanics and whites are highest in the Torrington micro area in Litchfield County, shown in charts 29 and 30. In Torrington the conventional purchase denial rate for low income blacks and Hispanics is nearly 40%, two and one-half times that of low income whites, and roughly one and one-half to two times higher than the other metro and micro areas. Similarly, in Torrington the middle income denial rate for blacks and Hispanics is 24%, two and one-half times that of middle income whites.

For applicants with high incomes, the denial rates and ratios are similar, except in Norwich where denial rates are the lowest among the areas. The differential between blacks/Hispanic and whites is down to 1.2 to 1, as shown in chart 31.

Refinance denial rates and disparities between these racial groups are more consistent between metros and micros. For applicants with low to middle incomes these measures are similar across metros, with the exception of Torrington where the refinance denial rate and differentials between racial groups is comparably low, shown in charts 32 and 33. This trend is the opposite of what was found in the home purchase market, where Torrington had the highest denial rates and disparities (charts 29 and 30).

\[ \text{\textsuperscript{16}} \text{HUD median regional family incomes (RMI) for each metro and micro area in the state were used to calculate the ranges – low (RMI < 80%), middle (RMI 80 to 149%), and high (RMI 150% or more).} \]

\[ \text{\textsuperscript{17}} \text{Torrington’s conventional home purchase disparities for low and middle income applicants are in part produced by large conventional home purchase denial rates for black and Hispanic applicants, built up from mortgage denials that are widely distributed among different mortgage lenders. There are no lenders primarily responsible for these large black and Hispanic denial rates.} \]

\[ \text{\textsuperscript{18}} \text{The fact that in Torrington there are wide disparities between black/Hispanic and white applicants in conventional home purchase denial rates, while there is little disparity between these groups in refinance denial rates may be due} \]
Unlike those with low and middle incomes, applicants with high incomes tend to be treated more unequally between metro and micro areas, shown in chart 34. While Norwich and Torrington have higher denial rates and disparity ratios than the other areas, Bridgeport and Willimantic are areas with the lowest rates and disparities.

to wealth differences between the pool of applicants seeking home purchases (potential first time home buyers) and those seeking refinances (who may have built equity in their current homes).
b. Metro Government-backed Lending Disparities

Black and Hispanic applicants receive disproportionately more government-backed home purchase loans than whites, and the disparity varies to a greater extent than do denial rates between metro and micro areas. For low income applicants, Willimantic has the highest percentage of applicants receiving government-backed purchases, yet it also has the smallest disparity ratio—1.1 to 1 between blacks/Hispanics and whites, shown in chart 35. Conversely, Bridgeport has the smallest share of low income applicants receiving such loans, but has the largest disparities—blacks are 2.8 times more likely to receive a government-backed loan than whites.

A similar trend is found with middle income applicants, with Bridgeport having the lowest government-backed lending rates, but the highest disparities and Willimantic having the lowest disparities, shown in chart 36. New Haven and Norwich have the highest rates of such loans, but have similar disparity ratios, as do the remaining areas, between 1.7 to 1 and 2 to 1. For high income applicants, New Haven has a particularly large government-backed lending rate of 38.3% and the largest disparity ratio—high income blacks and Hispanics are 2.8 times more likely to receive such loans than high income whites, shown on chart 37.

c. Metro Loan Shortfalls to Majority Non-white Census Tracts

There are also differences across metros in shortfalls to majority non-white areas. Hartford stands out as having the largest number and rate of conventional home purchase shortfalls, as a percentage of actual loans made to majority non-white tracts, shown in chart 38. In Hartford, 1,549 additional conventional purchase loans would have been made to majority non-white tracts if they were distributed according to homeowner income, 110.6% more than the number loans actually made to these areas. Bridgeport has the next largest number of these shortfalls, 1,221 additional loans would have been made. But it also has the lowest shortfall rate among metros of 41%. New Haven has a loan shortfall of just over 1,000, more than double that of the loans actually made, while Norwich has a shortfall of 60, and a shortfall rate of 59%.

There are a larger number of refinance shortfalls across metros, and those with larger numbers tend to have the smallest shortfall rates, shown on chart 39. For instance, Bridgeport has the largest number of refinance shortfalls (4,985), but has the lowest shortfall rate—there would be 77% more loans to majority non-white tracts if these loans were distributed according to homeowner incomes across the metro. Outside of Norwich, New Haven has the smallest number of shortfalls (3,440), but the largest shortfall rates—there would be about 102% more loans, more than double that of actual loans, made to majority non-white census tracts. Hartford has 4,281 refinance shortfalls to majority non-white tracts, a shortfall rate of 87%.

---

19 Torrington and Willimantic micro areas did not have a sufficient number of majority non-white tracts to report on shortfalls.

20 It is important to note that the number of shortfalls are influenced by the size of metro area mortgage markets. A given shortfall rate in a large metro represents more loans than in a small metro.
IV. Appendix

A. Data and methods

1. HMDA

Home Mortgage Disclosure Act data was obtained online from the Federal Financial Institutions Examination Council: https://www.ffcic.gov/hmda/hmdaraw.htm. Files were downloaded using the HMDA LAR & TS Raw Data Windows Application for years 2010 through 2014. The years were then aggregated to form one statewide database for the five year time period.

The analysis uses data for more than 650,000 applications for owner occupied properties with 1-4 family homes. Applications are limited to first lien mortgages not sold into the secondary market and exclude 641 records that had no census tract data. Included are applications for conventional home purchase, government-backed home purchase, refinance and home improvement loan applications. Applications for home purchase loan purposes were split into conventional and government-backed loans, to distinguish between conventional loans that tend to be less expensive, and government-backed loans that tend to be more costly and which are more often obtained by first time homebuyers and applicants with low incomes.

Subprime loans, which by definition are more costly, were also reported. HMDA includes this data when reporting on rate spreads for loans originated that are, on average, greater than 3 points above the prime interest rate set by the U.S. Treasury Department.

HMDA data variables were coded and joined with U.S Census Bureau information pertaining to census tracts in order to perform a more detailed analysis on geographic lending patterns across the state. Joining these data sets enables reporting on neighborhood characteristics and loans shortfalls.

Below are more detailed descriptions of the HMDA data and methods used for the study:

i. Missing Data and Quality Issues

There were 80,015 records that were missing the applicant’s race (12.3% of the relevant records). These records include applicants that applied by mail, the internet or phone. The rules in the act preclude the lender from reporting race in these cases. Records with missing data were not reported when showing breakdowns of applicant by race, but otherwise were included (e.g. denial rates on maps).

There were 37,889 records that were missing the applicant’s income (5.8% of the relevant records) These records were not used when reporting on income--for instance when calculating lending disparities by race and income groups or for census tract loan shortfalls, which are in part based on the income of applicants. It is also notable that for records with income available, 13.4% do not contain racial information. The income distributions between applicants with no
race and applicants where race was known; however, do not differ much, making it unlikely that
missing race data biases our results for race and income (see tables 2 and 3).

There are some quality issues with HMDA records in Connecticut. About 18% of records
included quality edits, which broke logical consistency rules set by FFIEC. Though cell values
may have been reported as inconsistent, they may not be incorrect. Also, in HMDA, if one
attribute variable is inconsistent with another, the whole record is flagged inconsistent, even
when other variable cells for a record are consistent. Due to the likelihood of excluding valid
variables in records and the difficulty in evaluating records flagged with quality issues, we opted
to report on these records.

ii. Race

HMDA collects the racial categories as required by the U.S. Office of Management and Budget
and reported by the U.S. Census Bureau. Racial information is mostly self-identified by the
applicants, but in some cases the lender reports a race, if it is not self-reported by an applicant.
Racial information about the applicant is not included in HMDA when the application is taken
by mail, phone or the internet and when there is more than one applicant, race and ethnicity is
reported separately for the applicant and co-applicant.

The racial categories in HMDA include American Indian or Alaskan Native, Asian, Black or
African American, Native Hawaiian or Other Pacific Islander and White. Like the U.S. Census
Bureau, HMDA allows the respondent (applicant) to identify more than one race. Likewise,
HMDA also reports on whether the applicant has Hispanic or Latino ethnicity, separately from
the racial categories.

For simplicity of reporting, Hispanics were reported as a race, including those of different races,
and as a result, all other racial groups are those with non-Hispanic ethnicities. The report
includes white, black, Hispanic, Asian and applicants of all other races, including those with two
or more races.

The ‘joint’ race category used by the Federal Financial Institutions Examination Council in their
HMDA aggregate reports was also used. These are records containing a combination of white
applicants and non-white co-applicants, or visa-versa.. However, we count all Hispanic or Latino
whites in the Hispanic category, and consider Hispanic and white combinations as ‘joint’
applications. Applicants with ‘joint’ races are included within our other race category results.

Finally, where numbers are too small for individual racial group results (n < 25), we do not
report these figures, due to their lack of reliability. Instead we sometimes group the results for
overall racial minorities, including all applicants and borrowers that are not white, particularly
when the data is broken down by race, income and lending type. For the same reason we
sometimes report on results for blacks and Hispanics combined in order to highlight their
mortgage lending disparities, which are often the largest among racial groups.
iii. Income

In the report we categorize income groups using median family income as reported by the U.S. Department of Housing and Urban Development (HUD). HUD reports these income categories at the regional (metro and micro area) level and reports for each applicant the census tract percentage of regional median incomes (RMI) for where the loan is to be used.

The data is categorized in this report into six income categories: Very Low (RMI<50%), Low (RMI 50 to 79%), Middle (RMI 80 to 119%), Upper Middle (RMI 120 to 149%), High (RMI 150 to 199%) and Very High (RMI 200% or more). We make a separate set of income cutoffs for each of these categories annually, as they change from year to year. When comparing metro areas with one another we simplify the categories to Low (RMI<80%), Middle (RMI 80 to 149%), and High income groups (RMI 150% or more). These simplified ranges are used both for ease of reporting and because the number of cases become small when breaking the data down into multiple cross tabulations.

For the calculation of loan shortfalls, we match HMDA reported income with Census household income for homeowners to determine how many loans census tracts should expect. Again, these are determined by the HMDA borrower income distribution and the distribution of homeowner incomes across census tracts. We report expected census tract loans using owner household income, because there are no readily available census breakdowns on family income by owner occupied homes in census tracts.21

Finally, because the concurrent period of the U.S. Census Bureau, American Community Survey for census tracts (2010-2014) are averaged by the Bureau over a five year period and adjusted into 2014 dollars, we do the same for income information recorded in HMDA when calculating loan shortfalls.

iv. HMDA: 2000 and 2010 Census Tracts

The geographies of census tracts change every ten years in preparation for the decennial census. While the census began reporting data at the tract-level in 2010 for census tracts delineated for 2010, HMDA did not report these data until 2012. As a result, the HMDA data we have

---

21 Income data is reported for applicants in HMDA and is reported for persons, households, and families in U.S. Census Bureau data. To compare HMDA income data with the Census data, researchers have to choose which data version the Census reports on. Because researchers often use family incomes as a way to describe HMDA incomes, we do the same. However, to estimate shortfalls we are limited to using Census homeowner income data. It is important to note that Census homeowner income is more valid in comparison with HMDA incomes, than is Census family incomes, as non-family households also utilize purchase and refinance loans.

It is also noteworthy that differences between U.S. Census median family and median owner households are small in Connecticut, which helps validate these two measures. Statewide the median owner household income is $91,087, only 3.3% higher than Connecticut’s median family income of $88,217. Metro and micro area differences vary, but not substantially. For instance, New Haven metro shows 6.4% higher owner household income than family income, while Torrington micro shows 4.3% lower owner than family income.
obtained includes year 2000 defined census tracts (for 2010-2011 HMDA data) and year 2010
defined census tracts (for 2012-2014 HMDA data). Therefore, in order to report on the
geography of lending patterns across the state at the tract-level, we needed to reconcile the
differences between 2000 and 2010 census tract boundaries.

There were few changes to the size and shape of census tract boundaries in Connecticut between
2000 and 2010. Of the 819 census tracts in 2000, only 25 had changes to their 2010 boundary
definitions, mostly tracts that were combined or split up over the decade.\footnote{22} To reconcile the 25
census tracts with different 2000 and 2010 boundaries we used a proportional split method
approach based on the percentage share of homeowners residing in a changed area, as measured
by homeowners at the block-level in 2010. In this way we normalize the results from 2000 into
2010 census boundaries.

An example of the proportional split approach is as following: If in 2010 there are 1,000
homeowners residing in census blocks which are located within the 2000 boundary of census tract 1, and the 2000 census tract was split into tracts 1A and 1B in 2010, with tract 1A containing 600 of these homeowners and tract 1B containing 400 of these homeowners, then 60% of the HMDA results for year 2000 census tract 1 are apportioned to year 2010 tract 1A and 40% to year 2010 tract 1B. To follow through on this calculation, if there were a total of 100 loans made in year 2000 census tract 1, then 60 would be counted towards year 2010 tract 1A and 40 towards year 2010 tract 1B. In this way, we multiplied these proportional split percentages into the number of loans by loan purpose and type (conventional and government-backed home purchases, refinances and home improvements) for all census tracts in the state.

v. Mortgage Decisions, Lending Disparities and Future HMDA variables

While lenders do not consider income alone in determining loan outcomes, large disparities call
into question how other criteria in the mortgage decision process could possibly close the gaps
between minorities and whites. For instance, when very high income blacks are more likely to
be denied conventional home purchases than low income whites, as they are in Connecticut, it is
hard to see how the economic profiles of very high income blacks would be that much more
unfavorable than those of low income whites.

Barring any changes to section 1094 of the Dodd-Frank Act, additional variables will be
introduced to HMDA (for year 2018) that will help researchers better understand racial
disparities in the mortgage market. They include age of applicant, use of broker as channel for
application, credit score, loan originator ID, loan term, negative amortization, terms of

\footnote{22} We did not include census tracts that had minor changes in their boundaries, which were mostly due to small
modifications in component census blocks. These modifications are due to improvements in the measurement
precision of street centerline locations which bound most census blocks, which in turn, are the building components
for census tracts.
prepayment penalty, property parcel ID, property value, rate spread for all loans originated, introductory rate period terms, loan points and fees and a universal loan identifier.

2. U.S. Census Data

Socio-economic data was obtained from the U.S. Census Bureau to make demographic comparisons with the statewide lending patterns found with the HMDA data. While HMDA does include some U.S. Census information about census tracts in its dataset, it is incomplete for the purposes of this study and is outdated in the 2010 and 2011 HMDA, which uses information from the 2000 Census.

i. U.S. Census Bureau, American Community Survey (ACS)

This report uses the 5-year average data reported in ACS for the years 2010 to 2014. The 5-year ACS data is the only way to obtain detailed socio-economic information for census tracts and most county subdivisions, as one year data does not have a large enough sampling rate to report on these smaller geographies. We simply selected the same time period from the ACS for which we collected HMDA data, 2010 to 2014. The demographic attribute data for these geographies was downloaded from the U.S. Censuses American FactFinder website: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

From American FactFinder we downloaded Connecticut’s data on race and Hispanic origin, median household income, and data broken down by owner household income groups, using the former two to map median income and percentage racial minorities across census tract geographies and the later (owner household income) to calculate loan shortfalls.

The five year ACS is approximately based on a 1-in-11 survey of households. While the ACS often has large margins of error across census tracts, due to errors introduced from the ACS sampling rate, such data in this report is aggregated into racial categories or used to report spatial trends on maps in such a way that the margins of errors for our results will be much lower and much more reliable than those reported for any one census tract.

ii. U.S. Census Bureau Geographies

Spatial data used in the report was obtained from the U.S. Census Bureau, 2014 TIGER/Line Shapefiles website https://www.census.gov/geo/maps-data/data/tiger-line.html. For 2014 we downloaded census tracts for the years 2000 and 2010, as well as 2014 county subdivisions, which include statewide cities and towns, for all of Connecticut.

These data are used to display maps and undertake spatial analyses using ESRI’s ArcMap GIS software. We also used 2010 block-level data for homeowners to normalize 2000 census data

23 TIGER = Topologically Integrated Geographic Encoding and Referencing.
into 2010 census tracts, which is provided in attribute format by the U.S. Census and made accessible in shapefile format by ESRI:
http://www.arcgis.com/home/item.html?id=c2fa813733d746ff99d28bbb25d9b8a4

3. Loan Shortfall Calculations

Shortfalls are a shortage of something expected, for this report these are mortgage loans. Here shortfalls are defined as a counterfactual that estimates what lending patterns would be if loans were made to all Connecticut homeowners according to income alone. Other factors that go into the loan decision making process, such as applicant credit histories are not available for researchers and were not included in the analysis, but this information is due to be available in future iterations of HMDA starting for year 2018, and should be incorporated into future analyses.24 These and other factors in loan decisions are less likely to explain away large loan shortfalls to majority non-white census tracts, and lenders should provide and justify such criteria when such shortfalls and other racial lending disparities are large, even when accounting for income.

The expected results showing loans distributed according to homeowner incomes are compared to actual lending patterns to estimate shortfalls or surpluses in the numbers of loans in different types of communities and neighborhoods. Estimates of shortfalls and surpluses for Connecticut census tracts show major shortfalls of mortgage loans in racially diverse and majority non-white neighborhoods. Shortfall estimates were made separately for each region (metro/micro area) in order to account for variation in incomes across the state. These were summed when reporting on statewide totals.

The expected number of loans for a specific tract in a specific region is calculated in two steps. First, the actual metro-wide (or micro-wide) percentage distribution of loans across income groups is calculated for each metro or micro area using HMDA borrower incomes (those who received loans). The calculation is made separately for each loan type (conventional purchases, government-backed purchases, refinances and home improvements).

The income groups categorized in the HMDA data, used to calculate the percent distribution of loans, were based on six of the eleven income categories for homeowners found in the 2010-2014, U.S. Census Bureau’s 5-year American Community Survey (ACS) table of tenure by household income in the past 12 months (In 2014 inflation-adjusted dollars).

These selected ranges include the following homeowner incomes:

24 See appendix section A-I-v. Future HMDA variables.
• Less than $34,999
• $35,000 to $49,999
• $50,000 to $74,999
• $75,000 to $99,999
• $100,000 to $149,999
• $150,000 or more

We included only six from the eleven income categories from the census because the remaining income classes were too small to capture meaningful numbers of borrowers including those broken down with household incomes of less than $5,000, $5,000 to $9,999, $10,000 to $14,999, $15,000 to $19,999, $20,000 to $24,999 and $25,000 to $34,999.

For the second part of the expected loan calculation, the metro number of total loans made to each income group were distributed across the tracts (for each metro) based on the census tract share of homeowners in the relevant income range. Put another way, the number of loans that a census tract is expected to receive is based on the number of loans made in HMDA and the distribution of homeowners across a metro, for each income group. For instance, if there were 1,000 loans made to borrowers in a particular income range (in the HMDA data) and 5% of all owner households in that income range resided in a particular census tract, then that tract would be assigned 50 loans (1,000 x 0.05 = 50).

The expected number of loans in census tracts is added together, for each income group separately, and the calculation is repeated separately for each of the six regions in Connecticut and for each loan type. With every census tract having a number of expected loans we subtract this number by the number of actual (observed) loans that were actually made to come up with a total number of shortfalls or surpluses (i.e. expected minus actual number of loans).

Because metro areas and racial neighborhood types differ in their size of loans acquired, areas and neighborhoods with larger populations could intrinsically have a larger shortfalls. As a result we also calculate shortfall rates, which are the percentage of shortfalls as a total of actual loans.
B. Additional Lending Results

1. Geography of Applicants by Race and Income

For this study three detailed census tract maps of race by income and mortgage outcomes were created. These include the number of applicants by income groups and share of loans that were originated for blacks, map 13, Hispanics, map 14 and whites, map 15. The maps are colored by the predominant income group and are shaded according to the number of applicants in census tracts. Because the statewide maps have so much detail, closer inspection of sub regions on the map is required to discern differences between census tracts.
Map 13: CONNECTICUT:
Black Applicants by Income and Share of Loans Originated by Census Tract, 2010 - 2014

Map 14: CONNECTICUT:
Hispanic Applicants by Income and Share of Loans Originated
by Census Tract, 2010 - 2014

2. Metro Lending Patterns Addendum

The following figures and maps are divided into metro and micro area sections. These results provide similar analyses as found in the statewide report, but with maps results delineated for each metro, which thematic map categorizations are based on the metro regional average values. Also included are breakdowns of housing shortfalls for each municipality in a metro. These metro areas include:

- Bridgeport-Stamford MSA
- Hartford MSA
- New Haven MSA, and
- Norwich-New London MSA

In addition, where data was sufficient enough, we provide the tabular results for non-metropolitan, micro areas including:

- Torrington Micropolitan Area, and
- Willmantic Micropolitan Area

Each of these reports show only the data results for the metro- and micro- areas and are intended as addendum to the report. As a result, the charts and maps titles remain without figure numbers, and there is no direct textual description given to them in the report.